A HANDBOOK

OF

ANTIQUE PROSE-RHYTHM

I

BY

Dr. A. W. DE GROOT

J. B. WOLTERS - GRONINGEN, THE HAGUE

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I

HISTORY OF GREEK PROSE-METRE
DEMOSTHENES, PLATO, PHILO, PLUTARCH
AND OTHERS

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PREFACE.

This work tries to apply and to propagate a new method of investigation of the clausula. It must therefore be considered as a simple introduction to this method, and is based upon much pioneer work, which, as such, will naturally be incomplete, and open to criticism. I have tried to confine myself to facts only and to give as few hypotheses as I could, as I am fully aware that the few hypotheses found here, will require important modifications.

Of one thing I am firmly convinced, viz. that only with this method, that is either with mine or a similar one, at any rate with a method of comparison, reliable results can be obtained. I am also convinced that Zielinski quite wrongly looks upon his statistical basis as 'felsenfest', and that, if the science of antique prose-rhythm is to lay claim to this name, it will have to change the usual method of investigation altogether.

To bring this clearly to light, I have often been obliged to discuss the opinions of others. For the sake of brevity I have only done so, when I could not agree with their theories and opinions: if I had not confined myself to this, my work would have failed in its purpose of being a brief introduction. I hope that the reader will

understand that it is not my wish or intention to give to my work a somewhat polemic character.

By choosing the form of lectures I have tried to make the matter which is naturrlly not very readable, a little more attractive.

One of the first things in future will be to investigate an absolutely non-metrical and non-rhythmical text. As I wanted such a text only for a comparison with the sentence-metre of Demosthenes, I have taken Thucydides as such.

Further I take the liberty of pointing out that the words of Mr. Ammon (Berl. Philol. Wochenschrift 1918, col. 495) viz. that I should have considered Procopius of Caesarea as a metrical author, must be ascribed to a natural misunderstanding; of his valuable remarks as well as of those of professor D. V. Hesseling in Leyden I shall be glad to avail myself later on.

Of course I have made a frequent use of Clark's valuable Fontes prosae numerosae, of Laurand's clear E'tude sur le style des discours de Cicéron, and of many other works.

This part will be followed by a second for the Latin prose and the later accent-rhythm, in which the bibliography will be completed with an extensive systematical one. I shall also discuss in it the modern theories of Zander and others from the standpoint of a comparative method.

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In conclusion I want to express my gratitude to those that have offered their services to me. First of all to professor J. van Wageningen: if it had not been for the constant interest which he showed in my work, I could hardly have finished it; his remarks both on the form and the contents have influenced it in many respects. To my father whose invaluable assistance has facilitated my task in no small degree. To professor G. Heymans, Dr. P. J. van Rhijn, and Dr. F. Zernike, by whose publications and oral information I have improved my work considerably. To my friend Mr. J. G. Holthuis, who assisted me in constructing the curves. And last not least to Mr. G. Dudok, who offered his time and valuable services in supervising the translation in a most unselfish way.

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CORRIGENDA.

Page IV, line 16, D. C. Hesseling instead of D. V. Hesseling.
„ XI, „ 15, Thucydides „ „ Thycydides.
„ 80, „ 13, 4·9 % „ „ 0·00 %.
„ 80, „ 21, p. 54 and 59 „ „ p. 00 and 00.
„ 102, „ 18, 'Quatenus Cicero ipse numerum suum oratorium in certam formulam redigere potuerit', instead of: 'Quomodo ... potuerit'.
„ 123, „ 5—6, assertion results instead of assertion, results.
„ 124, „ 24, avoided „ „ sought.
„ 127, „ 4, exists „ „ exist.
„ 135, note [1]), passim „ „ p. 00.
„ 136, line 24, and as an hexameter ending: instead of and.
„ 137, „ 2, diaeresis instead of caesura.
„ 162, „ 23, 65 % „ „ 50 %.
„ 162, „ 24, 50 % „ „ 65 %.
„ 163, „ 10, psychical „ „ pscyhical.
„ 166, „ 9, read „ „ reed.
„ 192, „ 27, ὀρθῶς „ „ ὀεθῶς
„ 196—197 (table), line 1, TABLE OF CLAUSULAE, instead of TABLE OF CLAUSULA.
„ 196—197 (table), line 34 sqq.:

—⏑——⏑—⏓ —⏑—⏑⏓
—⏑⏑——⏓

(10) Polemo. —⏑⏑—⏑⏑
instead of: —⏑——⏑—⏓ —⏑—⏑⏓

(10) Polemo. —⏑⏑—⏑⏑ —⏑⏑——⏓

„ 197, line 8, —⏑—⏓ instead of —⏑⏑⏓.
„ 197, „ 23, —⏑—⏓ „ „ —⏑—⏑⏓.
„ 201, „ 23 and 24: La prose métrique etc. should be omitted.
„ 228, „ 12, Wilamowitz 103, 130, 134, instead of 130, 134.

ANTIQUE PROSE-RHYTHM.

FIRST LECTURE.

Is there indeed such a thing as a sharply definable prose-rhythm? will be the first question that arises with most of you, when discussing this subject. Are we not of the same opinion as those „who found themselves unable to use the concept rhythm in prose" because of its vagueness? Are we not to ascribe the occurrence of all kinds of so-called curious and typical phemomena to chance?

This question must be settled first of all. It ought to be answered with a positive *no*. A systematic statistic investigation shows us, that a passage from the works of Demosthenes has another distribution of metrical forms than any passage from the Lives of Plutarch. To prove this, I took from different writers pieces each consisting of 1000 syllables. These syllables are of course either long or short, and only in a very few cases we can't be quite sure whether they are long or short. Here we have consequently a perfectly objective datum. Out of each group of 1000 syllables we take every two short syllables, between which there is no third short syllable and see how many long ones there are between. There may be 0 long syllables between,

e.g. in *μετά* ⏑⏑

or 1, *παροῦσιν* ⏑—⏑

or 2, *γυναικῶν παρόντων* ⏑——⏑[——

or 3, *γυναικῶν τῶν παρόντων* ⏑———⏑[——, etc.

We now write down how often in every 1000 syllables there are 0 long, 1 long, 2 long between 2 short ones. For the first 1000 syllables from Thucydides and those from the life of Pyrrhus of Plutarch I found the following figures.

	Thucydides	Plutarch
⏑⏑	180	237
⏑—⏑	113	144
⏑——⏑	57	60
⏑———⏑	40	40
⏑————⏑	18	23
⏑—————⏑	20	4
⏑——————⏑	2	1

Certain relations are noticeable here, for we see at once, that there is an intimate agreement between the two columns: in both the form ⏑⏑ is most strongly represented. So it occurs more frequently that there is *no* long syllable between two consecutive short syllables than that there is one, or than that there are two between two short ones.

When comparing the two columns, we notice a certain difference. The forms ⏑⏑, ⏑—⏑, ⏑——⏑, and ⏑————⏑ occur more frequently in Plutarch, the form ⏑————⏑ occurs as frequently in both, whereas Thucydides oftener uses ⏑————⏑ and ⏑————⏑.

The question might now be put: are we not to ascribe all this to chance? Will not the following 1000 syllables give quite different figures? Will not, in connection with what you pointed out above, just the opposite results be obtained? It is unimaginable that the following 1000 syllables of Thucydides will yield again for ⏑⏑ exactly 180, for ⏑—⏑ exactly 113, for ⏑——⏑ exactly 57. Suppose we had 240, 120 and 70, then our previous statement could not be maintained. We doubt whether in the grouping of long and short syllables there is any difference between the two authors. We doubt very much whether you have sufficient material at your disposal to prove your case.

To this I give you the following answer.

Indeed the material of 1000 syllables is not sufficient for our purpose. Therefore my investigations are not based on these 1000 syllables only. Of practically all the authors I investigated, I did not take one group, but twelve groups of 1000 syllables. The question is now: do the figures of all these groups point in the same direction?

From a more extensive investigation it appears very

clearly that this is indeed the case. As an example I take the form ⏑—⏑.

The frequency of this form in the twelve pieces of Thucydides is the following:

113 70 89 98 113 107 93 105 99 91 109 85.

In Plutarch:

144 143 152 135 142 134 148 141 126 135 138 127.

From this we infer that all these figures in the works of Thucydides are lower than those in Plutarch. In Thucydides they vary between

70 and 113.

In Plutarch, on the other hand, between

126 and 152.

The highest figure in Thucydides is considerably lower than the lowest in Plutarch.

I hope that by means of these figures I have convinced you somewhat of the fact that there is no question of l'art de grouper les chiffres, but of la science de grouper les chiffres. The average figure for ⏑—⏑ per 1000 syllables is for Thucydides 97.7, for Plutarch 138.8. Are we to ascribe this difference to a preference for that form in Plutarch or to an avoidance of it in Thucydides? This is a question we shall have to answer again and again

in the course of our investigations. Facts prove that this difference is owing to a preference for that form in Plutarch. This appears from a comparison with other authors. In the same manner I also investigated Xenophon, Isocrates, Demosthenes, Plato's Republic, Plato's Laws, and the Consolatio ad Apollonium, which has got amidst the Moralia of Plutarch. As an average figure for ⏑—⏑ on 1000 syllables they give:

Xenophon	97·2.
Isocrates	85·2.
Demosthenes	111·5.
Plato, Republic	105·0.
Plato, Laws	80·5.
Consolatio ad Ap.	102·0.
Thucydides	97·7.
Plutarch	138·8.

Probably you will be convinced now. But we have another conclusive proof. Not long ago Stiefenhofer convinced us that the *συγκρίσεις* of Plutarch form an essential part of his biographies. He showed us that the language of these *συγκρίσεις*, in which Plutarch makes a final comparison between the life of a Greek and that of a Roman, quite corresponds with the language of Plutarch. This in itself is an argument deserving our careful attention. But secondly he showed us that they form an

essential part of his biographies, a part which for reasons of composition cannot be dispensed with.

If the *συγκρίσεις* are indeed by Plutarch, they have to show the same peculiarities as the Lives themselves. Is this the case? To prove this we give the following figures for the frequency of ⏑—⏑ on 1000 syllables:

⏑—⏑ 131 119 134 143 132 155 134 139.

Average 137.1.

It seems to me that the proof could not have been more conclusive. The figures entirely confirm the results of the previous investigation. Attention should also be paid to the other forms.

Another example. In the same manner as we have investigated the series of long syllables in Greek prose, we can investigate the series of short syllables. Whereas, as far as I know, the first possibility has never been thought of, Marbe already pointed out the last, which Thumb applied on a small scale. In other words investigations may be made how many short syllables there are between two long ones, i. e. the frequency of the forms —⏑—, —⏑⏑—, —⏑⏑⏑—, etc. may be determined. We then get for Thucydides and Demosthenes the following statistics for the first 1000 syllables of the Pelop-

onnesian war, and for the first 1000 syllables of the first Philippic.

	Thucydides	Demosthenes
———	302	308
—⏑—	139	128
—⏑⏑—	66	129
—⏑⏑⏑—	26	7
—⏑⏑⏑⏑—	13	0
—5—	3	1
—6—	1	
—7—	1	

The greatest difference between the two columns is, that the choriamb —⏑⏑— or dactyl —⏑⏑ is more frequent in Demosthenes, but that, on the other hand, the forms —⏑⏑⏑—, —⏑⏑⏑⏑—, etc. rarely occur there. Will this be confirmed by an extensive investigation? To prove this I shall first give the figures for the choriamb.

—⏑⏑— Thucydides

66 51 71 69 80 63 63 57 72 62 73 80.

Demosthenes

129 93 112 132 126 95 126 101 106 103 109 81.

About this there cannot be the least doubt. Now the longer series.

Thucydides.			Demosthenes.		
26	13	3	7	0	1
26	11	0	13	2	1
21	8	2	3	0	0
28	6	3	10	2	0
22	2	4	5	0	2
23	14	7	5	3	0
29	9	1	13	3	1
35	8	5	13	2	0
30	8	3	6	1	0
20	12	3	12	1	2
31	10	1	7	2	0
24	7	3	12	3	1
315	108	35	106	19	8

Average.

Thucydides	133·9	67·3	26·3	9·0	2·9
Demosthenes	147·9	109·4	8·8	1·6	0·7

In a similar manner, but with much smaller material Thumb already pointed out that Blass was right when he stated that Demosthenes avoids the tribrach. This proof of Thumb is very important. Münscher thinks it very unimportant, because it had already been discovered

before. He forgets, however, that Blass published no statistics, so that his statement might just as well have been incorrect. For so much of what Blass has said on rhythm has turned out to be incorrect later on. Marbe and Thumb were the first to point out to us in which way a scientific proof could be given.

This first of all. But secondly we are now able to draw the following conclusions from our material: the cretic —⏑— has not at all been sought by Demosthenes to the same extent as the dactyl or choriamb —⏑⏑—. Recent scholars such as Norden like to speak about the preference of Demosthenes for the cretic. Already the ancients make mention of this. But this assertion — I need hardly say it — is not based on statistics. And to anticipate our further investigations: in the clausulae as such, the cretic does not play any part in Demosthenes.

It will be understood that these are not the only results of our investigation. Of great importance is also this: between the metre of the Republic of Plato and his Laws there is a great difference. This difference is owing to the fact that Plato in his later years seeks for series of short syllables. Already Blass suggested this, but he only speaks of a preference for the tribrach (—⏑⏑⏑—). This one-sidedness can be accounted for: Blass did not know yet the method of arriving at a more certain result.

For Plato we get the following figures:

	Republic. Average.	Laws. Average.
—⏑—	146·2	112·8
—⏑⏑—	64·0	47·5
—⏑⏑⏑—	30·7	40·3
—4—	9·0	13·3
—5—	2·7	5·3
—6—	1·2	2·8
—7—	0·0	0·5
—8—	0·2	0·0
—9—	0·0	0·3

There are two curves here, which cross one another. In the Republic the forms —⏑— and —⏑⏑— occur more frequently than in the Laws, whereas with the other forms it is just the reverse.

We see that it is not mainly the tribrach which is preferred. Though the forms —⏑⏑⏑⏑— and —⏑⏑⏑⏑⏑— in themselves don't occur so often of course, they are, comparatively speaking much more frequent in the Laws than the tribrach. The preference shown for such a form can be expressed by means of a quotient. What I want to say is this: suppose there are 30 forms in the Republic and 60 in the Laws, then they occur twice as much in the Laws; the quotient is 60 : 30 = 2.

The quotient for the forms —⏑⏑⏑⏑— and —⏑⏑⏑⏑⏑⏑— is higher than that for —⏑⏑⏑—. We find for

	Republic (average).	Laws (average).	Quotient.
—⏑⏑⏑—	30·7	40·3	1·3
—⏑⏑⏑⏑—	9·0	13·3	1·5
—⏑⏑⏑⏑⏑—	2·7	5·3	2·0
—⏑⏑⏑⏑⏑⏑—	1·2	2·8	2·3

You will now understand why Plato in his later works so often uses expressions such as:

κατὰ τὸ δυνατόν, μέχριπερ, καθάπερ, ἐπαναφέρων, ἀπολομένων,
⏑⏑⏑⏑⏑⏑ ⏑⏑⏑ ⏑⏑⏑ ⏑⏑⏑⏑— ⏑⏑⏑⏑—

etc. You will also understand why he so often says: *τινὰ τρόπον* ⏑⏑⏑⏑, and not *τρόπον τινὰ* ⏑—⏑⏑. For such a metrical effect can only be produced *either by choice of words* : the author may make use of *καθάπερ* instead of *ὥσπερ,* i.e. ⏑⏑⏑ instead of —⏑, or of *μέχριπερ* instead of *ἕωσπερ,* i.e. ⏑⏑⏑ instead of ⏑—⏑, etc., *or by arrangement of words* : he may make use of *τινὰ τρόπον* instead of *τρόπον τινά,* i.e. ⏑⏑⏑⏑ instead of ⏑—⏑⏑.

The importance of all this, — we shall refer to it later on — should not be undervalued. Of late elaborate investigations have been made to fix by means of this choice of words the chronological order of Plato's dialogues.

It has been found that Plato used in his later works *καθάπερ* instead of *ὥσπερ*, *μέχριπερ* instead of *ἕωσπερ*. To us this becomes quite clear now. There is no easier means to get a particular combination of long and short syllables than by substituting one synonym for another. And when I tell you now already that also in the clausula of Plato there is a gradual development, you will agree with me that for the chronology of Plato's works the metre may become of the highest importance.

I also spoke about Plutarch and his preference for the form ⏑—⏑. This is not the only metrical peculiarity his prose shows. The most important is that Plutarch avoids series of long syllables. The forms

————
————⏑
————⏑⏑
————⏑⏑⏑, etc.

occur here less frequently than in all other writers investigated by us. That textual criticism—be it only on a moderate scale—might avail itself of this—I need not tell you. That this same tendency does not occur in Pseudo-Plutarch's Consolatio ad Apollonium will not surprise you. And perhaps all this may lead to prove more clearly and effectively the genuineness of many of the Moralia. Typical for Demosthenes is e.g. the following sentence (Olynth. II [5], ed. Weil):

Τὸ μὲν οὖν ἐπίορκον καὶ ἄπιστον καλεῖν ἄνευ τοῦ τὰ πεπραγμένα δεικνύναι, λοιδορίαν εἶναι τις ἂν φήσειε κενὴν δικαίως · τὸ δὲ πάνθ' ὅσα πώποτ' ἔπραξε διεξιόντα, ἐφ' ἅπασι τούτοις ἐλέγχειν, καὶ βραχέος λόγου συμβαίνει δεῖσθαι, καὶ δυοῖν ἕνεχ' ἡγοῦμαι συμφέρειν εἰρῆσθαι, τοῦ τ' ἐκεῖνον, ὅπερ καὶ ἀληθὲς ὑπάρχει, φαῦλον φαίνεσθαι, καὶ τοὺς ὑπερεκπεπληγμένους ὡς ἄμαχόν τινα τὸν Φίλιππον ἰδεῖν ὅτι πάντα διεξελήλυθεν οἷς πρότερον παρακρουόμενος μέγας ηὐξήθη, καὶ πρὸς αὐτὴν ἥκει τὴν τελευτὴν τὰ πράγματ' αὐτῷ, i.e.:

⏑⏑—⏑⏑— —⏑⏑— —⏑—⏑— —⏑⏑—⏑⏑—⏑—, —⏑⏑—
— —⏑— — —⏑⏑—⏑ — —, ⏑⏑—⏑⏑—⏑⏑—⏑⏑—⏑—⏑,
⏑⏑—⏑— —⏑— —, —⏑⏑—⏑— — — — — —, —⏑—⏑⏑— — —
—⏑— — — —, —⏑—⏑, ⏑— —⏑—⏑⏑— —, — — — — —, — —
⏑⏑—⏑—⏑— —⏑⏑— ⏑⏑—⏑—⏑⏑—⏑⏑—⏑⏑—⏑—⏑⏑—
⏑⏑—⏑⏑—⏑⏑—⏑⏑— — —, —⏑— — — — —⏑— —⏑—⏑— —.

Typical for Plutarch are e.g. the following words (Life of Philopoimen I):

Κλέανδρος ἦν ἐν Μαντινείᾳ γένους τε πρώτου καὶ δυνηθεὶς ἐν τοῖς μάλιστα τῶν πολιτῶν, i.e.:

⏑—⏑— — —⏑— —⏑—⏑— — —⏑— — — —⏑—⏑—⏑— —.

From Plato we may quote (Laws IX, 856*b*):

Μετὰ δὲ τὰ περὶ θεοὺς τὰ περὶ κατάλυσιν τῆς πολιτείας, i.e.:

⏑⏑⏑⏑⏑⏑⏑—⏑⏑⏑⏑⏑⏑— —⏑— — —,

or (858*a*): *Γελοίαν, ὦ ξένε, προτιθέμεθα τὴν αἵρεσιν, καὶ ἀτεχνῶς*

ὥσπερ κατεχομένοις νομοθέταις ὅμοιοι γιγνοίμεθ' ἄν ὑπὸ μεγάλης τινὸς ἀνάγκης ἤδη νομοθετεῖν etc., i.e.:

⏑—⏑—, —⏑⏑—, ⏑⏑⏑⏑⏑—⏑—⏑—, —⏑—⏑—⏑—⏑

⏑⏑—⏑⏑—⏑⏑—⏑—⏑—⏑—⏑⏑⏑⏑⏑⏑—⏑⏑—⏑⏑—⏑—⏑—⏑⏑—.

It was my intention to give you an idea of the importance of these metrical investigations and of the trustworthiness of their results. The man who occupied himself with this for the first time, was the psychologist Marbe, on whose suggestion Thumb applied this method to Greek prose. On Thumb's work we can in general make the following remarks.

Also in his revision of Brugmann's Grammatik (p. 666 sqq.) he reproaches the modern clausulae-investigators with not having first of all investigated the immanent rhythm of the Greek language. He is even of opinion, and in this respect I quite agree with him, that the present investigation of the Greek quantitative clausula has in general not yet led to definite results. To his remarks I add the following.

(1) The avoidance of —⏑⏑⏑—, —⏑⏑⏑⏑⏑—, etc. by Demosthenes is not sufficiently appreciated by him. He says that the figures indicating the frequency of the different forms in Plato and Xenophon do not differ much from those in Demosthenes, and that it lies in the nature

of ordinary speech that the rhythmical form —⏑⏑⏑— rarely occurs.

(2) In his opinion about the clausula of Demosthenes he wrongly agrees with Norden.

(3) His investigation of the rhythm is in so far one-sided that it takes the series of short syllables into account, but not the series of long syllables. We have seen that also this may be of importance as a criterion of genuineness, e.g. for the Plutarchian and pseudo-Plutarchian works. The reason why he has not taken the series of long syllables into account, is easy to understand: his method is that of Marbe. The method-Marbe is intended for modern languages, where seldom two or more accents follow one another. For in these modern languages we count the number of unaccented syllables which lie between two accented ones, and in this way we often arrive at the most interesting results, as has been pointed out by Lipsky. Why do in English two accented syllables succeed one another less frequently than two long syllables in Greek or in Latin? The principal reason is, because the accents which have to be taken into account do not depend, as in Latin and Greek on an objective factor, as the quantity of the syllables really is, but on a more subjective factor, sentence-rhythm, or emphasis, or stress. This is something quite different. According to Marbe's scansion the same word, the same syllable may be accentuated or

not, as sentence-rhythm requires. In Latin, however, a syllable is either long or short. The one-sidedness, therefore, of the method of Thumb can be explained by going back to its origin, it being invented for a Germanic, not for a classical language.

(4) He did not show us how to compare his own results for sentence-rhythm with those of clausula-investigations. Therefore we think we shall be able to improve upon his method by making it more complete. Why he failed in this attempt is obvious: *With the help of his method it would be an impossibility to compare them.* We gladly acknowledge Thumb's great merit of having formulated the problem correctly, but not of having solved it.

SECOND LECTURE.

In my last lecture I spoke to you about a preference for series of short or long syllables which in Greek occur in different writers. Some prefer combinations such as ⏑⏑⏑⏑⏑⏑⏑ etc.; others distinctly avoid ——————— etc. Some, as e.g. Plato, show a clear development in their prose metre, a development of which I have only given you a single instance: peculiar usage of words in his latter works has in this way found an unexpected explanation.

We may, in the meantime, put this question: is this all? Is this preference only based on series of short and long syllables, or is there more behind it? Has Demosthenes possibly shown a preference for the form —⏑—⏑—⏑ above —⏑———⏑———⏑—, or for —⏑⏑—⏑⏑—⏑⏑ above —⏑⏑———⏑⏑— etc.? When we know that —⏑— is sought by Demosthenes, we do not know yet whether the combination —⏑—⏑—⏑ is just as much sought as —⏑———⏑———⏑—. We know that Demosthenes has also sought the form —⏑⏑—; was it then quite immaterial to him whether he used series of dactyls or choriambs, —⏑⏑—⏑⏑—⏑⏑ or —⏑⏑— —⏑⏑— —⏑⏑—? So we shall have to investigate more. The question is only: how?

For these investigations I made use of a method some years ago, which proved to me to be the correct one. I investigated each combination of a fixed number of syllables, e.g. 6, 7, or 8. On practical grounds I took 7 and added — the reason why will be explained later on — an eighth, the quantity of which was left out of account. We then get $2^7 = 128$ possible series. These are e.g. 7 short, 6 short and 1 long, 5 short and two long syllables, etc. We then get the following scheme:

1 ⏑⏑⏑⏑⏑⏑⏑⏑≚
2 —⏑⏑⏑⏑⏑⏑⏑≚
3 ⏑—⏑⏑⏑⏑⏑⏑≚
4 ——⏑⏑⏑⏑⏑⏑≚
5 ⏑⏑—⏑⏑⏑⏑⏑≚
6 —⏑—⏑⏑⏑⏑⏑≚
7 ⏑——⏑⏑⏑⏑⏑≚
8 ———⏑⏑⏑⏑⏑≚
9 ⏑⏑⏑—⏑⏑⏑⏑≚
10 —⏑⏑—⏑⏑⏑⏑≚
11 ⏑—⏑—⏑⏑⏑⏑≚, etc.
. . . . . .
126 —⏑———————≚
127 ⏑——————————≚
128 ———————————≚

We can now investigate how often these combinations occur in the different writers.

You will believe me when I say that in Plato's later dialogues the forms

1 ⏑⏑⏑⏑⏑⏑⏑⏒
2 —⏑⏑⏑⏑⏑⏑⏒
3 ⏑—⏑⏑⏑⏑⏑⏒
4 ——⏑⏑⏑⏑⏑⏒, etc.

are more frequent than in his older works. We cut, so to say, a text into pieces of 8 syllables, and register these combinations.

It will be observed that the frequency of the different combinations varies in the different writers. In the same manner the last 8 syllables of each sentence may be investigated. Here also differences will be found. In the same manner the middle of the sentence may be compared with the end. Probably also a difference will be noted here. The clausulae of one writer may be compared with those of another. Also here differences will be found.

So, in Plutarch, the clausula *ἐκλέγουσιν,* or —⏑—⏒, is much more frequent than in Thucydides. Now, another important question arises: has Thucydides avoided this form, or was it used with undeniable preference by Plutarch?

At first sight one would be inclined to answer: Of course Plutarch has sought this form. For is not the

double trochee one of the most favourite clausulae, which are frequently found in Greek as well as in Latin prose?

I cannot, however, admit the strength of this argument. On the contrary, we have to acknowledge that, without the help of some other data, it will be impossible to decide which prose — i.e. the prose of Plutarch or that of Thucydides — we must consider as the prose of ordinary writing, and which, on the other hand, as metrically artificial. It might appear later on that Thucydides as well as Plutarch paid attention to the arrangement of long and short syllables in their prose, the latter, however, in a higher degree. This ought, therefore, to be settled first of all. We have to settle: what may we consider as natural and artless writing? What frequency of the different forms is to be found in Greek prose of ordinary speech?

I venture to say that it is Thucydides who appears to be entirely or almost entirely careless of the arrangement of long and short syllables in the sentence, and for the following reasons.

I think, we are justified to suppose that in artless natural writing there is no system whatsoever in the arrangement of long and short syllables. This is to be our ideal natural style. Let us, for the sake of argument, take it for granted that in Greek long syllables are much more frequent than short ones in a proportion of 2 : 1.

This proportion of $\frac{\text{frequency of long syllables}}{\text{frequency of short syllables}} = \frac{2}{1}$ is not the true one, but it may serve for example. If this be the case, a form —⏑⏑ will in general occur more frequently than ⏑⏑⏑. You will see that the latter will show a tendency to occur $\frac{1}{2}$ time as much as the former. The form —⏑⏑, however, will occur as often as ⏑—⏑, or as ⏑⏑—, as they consist of the same number of long and of short syllables.

If we call the frequency of the form ⏑⏑⏑ x, that of —⏑⏑ will come very near to 2 x. The frequency of ——⏑ is greater than that of —⏑⏑; it is twice as great as the latter. The frequency of ——⏑ will be 2 × 2 x, that of ——— 2 × 2 × 2 x.

Now, we may calculate the frequency of ⏑⏑⏑, —⏑⏑, ⏑—⏑, etc. in Thucydides. As I said before, I have mostly neglected the quantity of the last syllable of each form; if we investigate the last four syllables of each sentence, only eight forms can be found, viz.:

1. ⏑⏑⏑⏒
2. —⏑⏑⏒
3. ⏑—⏑⏒
4. ——⏑⏒
5. ⏑⏑—⏒
6. —⏑—⏒
7. ⏑——⏒
8. ———⏒

If we now could point out that the mutual frequency of each of these eight combinations was only determined by the respective number of long and short syllables of which they are composed — there would remain no room for special metrical tendencies. We shall calculate this.

Now, the ratio of the frequency of long syllables compared with that of the short ones in Greek seems to be nearly $\frac{577}{423}$ in Plato and nearly the same in Thucydides. We shall call this ratio p. The frequency of ⏑⏑⏑ we shall call x.

The frequency, then, of

⏑⏑⏑ = x.
—⏑⏑ = px $(= \frac{577}{423} x = 1{\cdot}2\ x)$
⏑—⏑ = px
——⏑ = p^2x
⏑⏑— = px
—⏑— = p^2x
⏑.—— = p^2x
———— = p^3x.

The sum total is $x + 3\,px + 3\,p^2x + p^3x = 13{\cdot}10\ x$. This total amount of the cases investigated by us is 2000. If in fact these 2000 forms are distributed in what we are accustomed to call a merely accidental way, the frequency of ⏑⏑⏑ must be nearly $x = \frac{100}{13{\cdot}10}\ \% = 7.63\ \%$, that of —⏑⏑ nearly $px = 10{\cdot}01\ \%$, etc.

As a matter of fact these numbers tally exactly with those, which were in reality found by us. A comparison of the figures follows here.

	Theoretical calculation.	Clausula-metre.	Sentence-metre.
⏑⏑⏑	7·63 %	8·5 %	5·8 %
—⏑⏑, ⏑—⏑, ⏑⏑—	10·01 %	8·8, 7·9, 10·4 %	10·7, 9·3, 11·3 %
——⏑, —⏑—, ⏑——	14·19 %	13·6, 14·2, 18·5 %	14·5, 14·4, 13·9 %
———	19·38 %	18·3 %	20·3 %

The correspondence of these numbers is really extraordinary.

The form —⏑— represents the frequency of —⏑—⏒ at the close of the sentence, i.e. the double trochee, the last syllable of which is assumed to be anceps. According to our theoretical calculation its frequency should have been 14·19 per cent. It was, however, for the first 1000 clausulae of Thucydides 14·0 %, for the second 14·4 %. The average figure is 14·2 %. With Plutarch, on the other hand, the frequency for the first thousand clausulae was 29·6 %, for the second 28·6 %, average 29·1 %.

I think, the problem has been solved now. Thucydides does not avoid the double trochee, nor does he seek it. A difference as is shown above between 14·2 % and 14·19 %, must only be ascribed to chance. But in this case a

difference of 14·2 % and 29·1 % is more than enough to draw an inference from, as I will show later on. Clearly does Plutarch show a preference for this form.

We are, therefore, now justified to suppose that we are allowed to consider Thucydides as an example of artless and natural ordinary prose, i.e. not with regard to his style, his sentence construction, his syntax, but with regard to his metre, i.e. the arrangement of long and short syllables. Perhaps the difference for the form ⏑ — — ⏓ (14·19 % — 18·5 %), for which the high frequency of the clausula — ⏑ ⏑ — — ⏓ in Thucydides is responsible, points to a divergence from this example. If afterwards we come to the conclusion by our investigations that this is his *single* favourite clausula, this result should not astonish us, as prose rhythm in its first stage shows an increasing number of favourite forms, not an „impoverishment", as has been assumed. Slight, however, is this difference as compared with the difference which will be found when we compare Thucydides' metre with that of more artificial writers.

In order to show more clearly how far our figures are reliable, I divided the investigated text of Thucydides into two equal parts, each comprising 1000 cases. For each of these parts I calculated the frequency of each form. I should like to draw your attention especially to the fourth column, in which the difference of each couple of figures has been given. It exceeds 0·8 % hardly four times!

THUCYDIDES' CLAUSULA.

Clausula form.	I Group A. Percentages.	II Group B. Percentages.	III Average.	IV Difference of the groups A and B.
⏑⏑⏑—⏑⏑⏑	0·8	0·2	0·50	0·6
—⏑—⏑	14·0	14·4	14·20	0·4
—⏑—⏑⏑⏑	2·4	1·6	2·00	0·8
—⏑⏑⏑⏑	5·0	5·4	5·20	0·4
—⏑⏑⏑—⏑⏑	1·1	1·4	1·25	0·3
—⏑⏑⏑—⏑	4·7	2·2	3·45	2·5
—⏑⏑—⏑⏑	2·7	1·5	2·10	1·2
—⏑——⏑	9·1	9·6	9·35	0·5
—⏑——⏑—	2·7	2·4	2·55	0·3
—⏑—⏑⏑	3·9	3.5	3·70	0·4
⏑⏑⏑——⏑	2·8	3·4	3·10	0·6
—⏑⏑⏑⏑⏑	2·1	2·6	2·35	0·5
———⏑⏑	5·6	6·9	6·25	1·3
—⏑⏑—⏑	8·1	7·6	7·85	0·5
————	19·7	16·8	18·25	2·9
—⏑⏑——⏑	5·8	6·3	6·05	0·5

Objections have been made, more particularly by Münscher that, without sufficient ground, I took Thucydides as a norm, as an example of natural prose with regard to his metre. I hope I have removed these difficulties. But Münscher made other objections, because I wrongly

neglected the difference between rhetoric and non-rhetoric parts. This is merely theory. Münscher refers to a work of Röllmann. From this work I derive the following figures.

Periclis laudatio funebris, clausulae creticae et choriambicae 76·6 %; material investigated 207 cases.

Periclis oratio (lib. I, cap. 140—144), the same forms 72·3 %; material investigated 217 cases.

Leaving alone the altogether arbitrary manner in which the clausulae creticae et choriambicae have been added together; for this group comprises among others:

clausulae creticae: —⏑—
—⏑——⏑—
⏑⏑⏑——⏑—
—⏑—⏑—
—⏑—⏑—⏑—
—⏑⏑—⏑—
—⏑⏑——⏑—

clausulae choriambicae —⏑⏑—
—⏑⏑——⏑⏑—
—⏑——⏑⏑—
—⏑——⏑⏑—
—⏑⏑——⏑
⏑⏑⏑—⏑⏑—;

leaving alone the arbitrary manner in which everything has been cut to pieces and made to clausulae for the sake of his theory, e.g. the sentence on page 31:

τὴν τε γὰρ πόλιν κοινὴν παρέχομεν
καὶ οὐκ ἔστιν ὅτε ξενηλασίας ἀπείργομέν τινα
ἢ μαθήματος
ἢ θεάματος
ὃ μὴ κρυφθὲν ἄν τις τῶν πολεμίων ἰδὼν
ὠφεληθείη,
πιστεύοντες οὐ ταῖς παρασκευαῖς τὸ πλέον
καὶ ἀπάταις
ἢ τῷ ἀφ' ἡμῶν αὐτῶν ἐς τὰργ' εὐψύχῳ.

There are, rightly understood, 9 clausulae! In spite of such means he has not succeeded in getting more than the following differences:

76·6 % (on 207 cases), and

72·3 % (on 217 cases) in rhetoric passages, whereas

59·3 % (on 143 cases) in non-rhetoric passages (lib. IV, 1—5).

If we now calculate (in what manner we shall explain later on) the probable error of these percentages, then we find

for 76·6 % a probable error of 2·0,

for 72·3 % a probable error of 2·1,

for 59.3 % a probable error of 2·3.

It should be understood that this is not the probably largest error, but the probable error. Would it not seem that these ratios $\frac{76{\cdot}6}{59{\cdot}3}$, or 1·3 and $\frac{72{\cdot}3}{59{\cdot}3}$, or 1·2, in addition

to the curious grouping and in addition to the arbitrary interpunction prove just the reverse of what is aimed at?

In conclusion I would draw your attention to some figures to show what slight differences a comparison with Xenophon's sentence-metre gives.

	A Xenophon sentence-metres	B Thucydides sentence-metres	C Thucydides clausula	Differences between A & B	A & C	B & C
⏑⏑⏑—⏑⏑⏑̲	0·8 %	0·5	0·5	0·3	0·3	0·0
—⏑—⏑̲	12·8	14·4	14·2	1·6	1·4	0·2
—⏑—⏑⏑⏑̲	1·7	1·8	2·0	0·1	0·3	0·2
—⏑⏑⏑⏑̲	4·0	3·6	5·2	0·4	1·2	1·6
—⏑⏑⏑—⏑⏑̲	1·4	1·1	1·3	0·3	0·1	0·2
—⏑⏑⏑—⏑̲	3·1	2·7	3·5	0·4	0·4	0·8
—⏑⏑—⏑⏑̲	2·0	2·9	2·1	0·9	0·1	0·8
—⏑—— ⏑̲	7·8	8·8	9·4	1·0	1·6	0·6
—⏑——⏑⏑̲	2·6	3·0	2·6	0·4	0·0	0·4
—⏑—⏑⏑̲	5·1	5·1	3·7	0·0	1·4	1·4
⏑⏑⏑——⏑̲	2·4	2·5	3·1	0·1	0·7	0·6
—⏑⏑⏑⏑⏑̲	1·0	1·3	2·4	0·3	1·4	1·1
———⏑⏑̲	9·1	9·4	6·3	0·3	2·8	3·1
—⏑⏑—⏑̲	5·6	6·5	7·9	0·9	2·3	1·4
———⏑̲	25·8	20·4	18·3	5·4	7·5	2·1
—⏑⏑——⏑̲	3·7	2·6	6·1	1·1	2·4	3·5

The differences that occur are so slight that we involuntarily pay attention to the form ———⏑ only, which, in Xenophon, shows a somewhat higher figure, namely 25·8 %, over against 20·4 % and 18·3 % in Thucydides. Is there indeed any question of a real difference and not of a difference that is the consequence of working with limited material? These questions can only be settled by more extensive researches. The very slight difference for the other forms, differences of, for the greater part, only parts of a percentage, exclude the presence of metrical tendencies altogether. Quite different is the case of the clever prose of Plato and Philo Judaeus.

I will not annoy you any further by giving figures and statistics. The question, however, of a certain basis of investigation appeared to me of so much importance that I could not refrain from making more minute investigations. I will now give you a summary of the results yielded by a comparison of the metre of Demosthenes with that of Thucydides. Demosthenian prose is characterised by the following tendencies:

(1) Preference for dactyls and choriambs in all combinations: *ὡς ἄμαχόν τινα τὸν Φίλιππον ἰδεῖν.*

—⏑⏑—⏑⏑—⏑—⏑⏑—

(2) Tendency of reiterations. Reiteration of dactyls, choriambs, and cretics is sought; reiteration of iambs and trochees is avoided.

(3) Tendency of combinations: dactyls and choriambs tend to succeed one another in any combination; e.g. — ⏑ ⏑ — ⏑ ⏑, or — ⏑ ⏑ — — ⏑ ⏑ —; any combination of cretics is avoided, e.g. — ⏑ — — ⏑ —, or ⏑ — ⏑ — — ⏑.

(4) Tendency of increasing avoidance; series of long and short syllables containing more than six long or three short ones, are avoided more strongly as the number of syllables increases: *εἰρήνης οὔσης ἐκ πτωχῶν πλούσιοι γεγόνασιν,* — — — — — — — — — — ⏑ — ⏑ ⏑ — ⏑; *μετὰ δὲ τὰ περὶ θεοὺς τὰ περὶ κατάλυσιν τῆς πολιτείας,* ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ — ⏑ ⏑ ⏑ ⏑ ⏑ ⏑ — — ⏑ — — —.

I think you will agree that our method is to be preferred to that of Marbe and Thumb. The latter does not distinguish between iambic-trochaic metre on the one hand, and cretic metre on the other. For the following texts it would give the same figures:

— ⏑ — ⏑ — ⏑ — ⏑ — ⏑ — ⏑ — — — — — (eighteen syllables),

— ⏑ — — ⏑ — — ⏑ — — ⏑ — — ⏑ — — ⏑ — (eighteen syllables),

viz.: — — frequency : 5, in either of them,

— ⏑ — frequency : 6, in either of them.

When we try, however, to analyse them by means of our method of the 128 possibilities, we get the following distribution:

— ⏑ — ⏑ — ⏑ — ⏑ | — ⏑ — ⏑ — — — — | — — 86, 118, etc, for the former; and for the latter:

— ⏑ — — ⏑ — — ⏑ | — — ⏑ — — ⏑ — — | ⏑ — 110, 92, etc.

The cretic rhythm is preserved now, and it will be understood that the same is true for dactyls and choriambs.

By means of Marbe's method we should not have been able to state that peculiar preference of Demosthenes for a reiteration of cretics, as for instance in:

πρῶτον μὲν οὖν οὐκ ἀθυμητέον,

— — ⏑ — — ⏑ — — ⏑ ⏑,

which certainly exists, nor to show that he avoids the reiteration of iambs and trochees.

Investigators of modern prose-rhythm have more than once pointed out the importance of such researches. They often try to determine the average number of unaccented syllables between two accented ones. Gropp already states that, with reference to the following texts, the method of Marbe would give the same results.

I ´ — ´ — ´ — ´ — — — — — — ´ — ´ — ´

II ´ — — ´ — — ´ ´ — — ´ — — ´ — — ´ ´

Quite the same holds good for

I — ⏑ ⏑ — ⏑ ⏑ — ⏑ ⏑ — ⏑ ⏑ — — — —

II — ⏑ ⏑ — — ⏑ ⏑ — — ⏑ ⏑ — — ⏑ ⏑ —

Nowhere, however, has the simple procedure of investigating longer series of syllables been suggested.

The tendency of increasing avoidance, which I men-

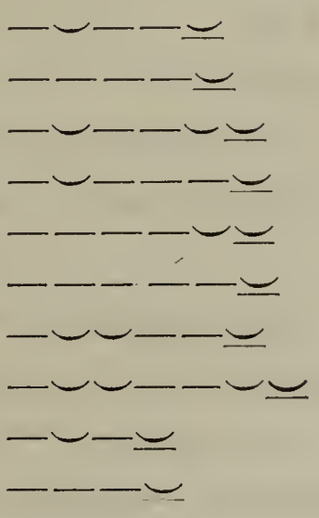
tioned above, will be quite clear to you from a psychological point of view. If a writer tries to avoid long series of long syllables, — ⏑ — — and — — — — — can hardly be avoided to the same degree. The latter will seem to him to be even worse than the former. As the number of syllables increases, this tendency will become all the stronger. In Plato, e.g. we are able to state that in the Laws the preference for ⏑⏑⏑, ⏑⏑⏑⏑, etc. as compared with the Republic may be expressed by the following quotients. (By a + sign we shall indicate that there is a preference for a certain form, or at any rate that it occurs more frequently there than in the text compared; a — sign indicates the reverse.)

	Frequency in the Republic on 1000 syllables. Average.	Frequency in the Laws on 1000 syllables. Average.	Quotient.
⏑⏑⏑	30·7	40·3	1·3 (+)
⏑⏑⏑⏑	9·0	13·3	1·5 (+)
⏑⏑⏑⏑⏑	2·7	5·3	2·0 (+)
⏑⏑⏑⏑⏑⏑	1·2	2·8	2·3 (+)

You see that in this way it is possible to compare the metres of the sentence with those of the end of the sentence. If, however, in either case we should get the

same percentage, the existence of any special metre at the end of the sentence would be highly doubtful, i.e. there would be no metrical clausula. Could it be demonstrated, however, that the clausula-metre greatly differs from that of the whole sentence, the clausula would prove to be from a metrical point of view an independent, or rather a separate part of the sentence. But so great is the power of a priori argumentation and of tradition that the problems the solution of which is attempted here are often entirely neglected in modern literature, because their existence and the necessity of their solution is only rarely felt and acknowledged.

As to Demosthenian metre (too often the term rhythm is used in this connection) the most curious and doubtful assertions are made. In his Antike Kunstprosa Norden gives the following scheme of favourite clausulae for Demosthenes:



If this scheme be correct, higher percentages must necessarily be found for these forms at the end of the sentence than through the whole sentence. Thumb, Münscher, and many others agree with him by accepting it without any proof. We are able to compare the figures.

Demosthenes.

	Frequency in the sentence	Frequency at the end of the sentence	Quotient
—⏑——⏓	8·0 %	8·0	
————⏓	9·0	11·2	(+)
—⏑——⏑⏓	4·1	4·0	(—)
—⏑———⏓	5·9	4·3	(—)
————⏑⏓	4·6	4·8	(+)
————— ⏓	4·1	5·8	(+)
—⏑⏑——⏓	7·2	3·7	(—)
—⏑⏑——⏑⏓	1·7	3·1	(+)
—⏑—⏓	12·4	18·9	(++)
———⏓	19·0	18·7	(—)

The form —⏑——⏓ occurs as often in the sentence. The 'famous' dicretic form occurs even less frequently in the clausula. For —⏑⏑——⏑ hardly half the number is found there. The double spondee, which was formerly considered as metrically identical with the double trochee (———— and —⏑—⏑) reaches 19·0 % in the sentence, only 18·7 % in the clausula. *Ἀλλὰ δεῖ*, as Aristoteles says

in his Rhetorics, *δήλην εἶναι τὴν τελευτὴν, μὴ διὰ τὸν γραφέα, μηδὲ διὰ τὴν παραγραφὴν, ἀλλὰ διὰ τὸν ῥυθμόν.* Only one or two forms, however, give a really favourite clausula. They are the double trochee: *ἐκλέγουσιν*, —⏑—⏑, and —⏑⏑——⏑⏑, e.g. *ζῶντες βίον ἀνθρώπινον.* The double trochee reaches 12·4 % in the sentence, 18·9 % in the clausula. I draw your attention to the curve; it gives the frequency of the forms

1—4 ⏑⏑⏑⏒
5—8 —⏑⏑⏒
9—12 ⏑—⏑⏒
13—16 ——⏑⏒
17—20 ⏑⏑—⏒
21—24 —⏑—⏒
25—28 ⏑——⏒
29—32 ———⏒

For the sake of brevity they have been indicated by 1, 5, 9, 13, 17, 21, 25, 29.

The results may be summed up as follows:

(5) Tendency of dependence. The clausula of Demosthenes is almost entirely dependent on his sentence-metre.

(6) Tendency of independence. In the clausula as such only a few forms are preferred.

The question remains to be answered, a question of

the highest importance which is therefore often discussed: is *ἐκλέγουσιν* —⏑—⏑ to be considered as the real length of the clausula? Does the length of the clausula here comprise only four syllables?

To answer this question we ought to find out what figures we should expect to find, if this should really be the case. Let it be assumed for the sake of argument that Demosthenes does not prefer any metrical form at the end of the sentence, except —⏑—⏑. Let it be assumed that this preference can be expressed by the quotient 2. The frequency of the form in the sentence is really 12·4 %. If our supposition is correct, we shall find 24·8 % at the end of the sentence. If, however, the quotient is 2, this will hold good for all subdivisions of the form —⏑—⏑. We may find e.g.:

		Sentence-metres.	Clausula-metres.	Quotient.
	⏑⏑—⏑—⏑	1 %	2	2 (+)
	—⏑—⏑—⏑	2	4	2 (+)
	⏑——⏑—⏑	4	8	2 (+)
	———⏑—⏑	5	10	2 (+)
Sum total	—⏑—⏑	12 %	24	2 (+)

In other words: whatsoever precedes, the quotient will always be the same.

This we might call an 'ideal' distribution of metrical

forms. Unnecessary to say that such a distribution will be found hardly anywhere. Often we have to be content to find for all subdivisions of the form a quotient with a + sign, or for all of them a quotient with a — sign. Only when our material comprises thousands of cases investigated, it is really surprising to see how often the percentages approach the 'ideal' figures. Let us now assume the reverse: the quotients for the different subdivisions vary altogether, e.g. in this way:

	Sentence-metres.	Clausula-metres.	Quotient.
⏑⏑—⏑—⏑	1·0 %	0·2	5 (—)
—⏑—⏑—⏑	2·0	0·4	5 (—)
⏑——⏑—⏑	4·0	8·0	2 (+)
———⏑—⏑	6·0	12·0	2 (+)

What would it prove?

First of all it would prove that the forms ⏑⏑—⏑—⏑ and —⏑—⏑—⏑, which, as you see, constitute the form ⏑—⏑—⏑!, are not preferred, but avoided. Further it would prove that the forms (⏑)⏑—⏑—⏑ and (⏑)———⏑—⏑ do not really belong together. On the contrary, we must say: ⏑—⏑—⏑ is avoided, ———⏑—⏑ is preferred. This means that the length of the clausula is not four syllables: —⏑—⏑, but five: ⏑—⏑—⏑ or ———⏑—⏑. For the quantity of the syllable which precedes —⏑—⏑, is not indifferent: if it is short, it gives a bad clausula;

if it is long, it gives a good clausula. Whenever it appears that the quantity of this syllable is indifferent, it does not belong any more to the 'clausula' in its technical sense. We may state: *the length of the clausula ends with the syllable of indifferent quantity.* To find out this indifferent syllable is theoretically very simple. Where a clausula of n syllables forms a metrically separated part of the sentence, all subdivisions of it will show the same quotient. Of course, the smaller the material that is investigated, the less frequently the figures approach their 'ideal' value, and the more one has to be content with an unbroken row of + signs, or of — signs.

I felt obliged to make this digression to answer the question: how long is the clausula of Demosthenes? Does it really comprise only four syllables: —⏑—⏑?

This is indeed the case. Even if not merely one, but two preceding syllables are taken into account, rather regular proportions are found:

Demosthenes.

	Sentence-metres.	Clausula-metres.	Quotient.
⏑⏑—⏑—⏑	2·5 %	2·6	1·0 (+)
—⏑—⏑—⏑	2.2	4·6	2·1 (+)
⏑——⏑—⏑	3·2	4·9	1·5 (+)
———⏑—⏑	4·5	6·8	1·5 (+)

If we take only the preceding syllable into account, the agreement becomes even more striking:

Demosthenes.

	Sentence-metres.	Clausula-metres.	Quotient.
⏑—⏑—⏑	4·7	7·7	1.53 (+)
——⏑—⏑	7·7	11·7	1·52 (+)

We have now discussed the most important and most elementary methodological questions. We have seen what a preliminary investigation of Greek prose-metre — I do not say prose-rhythm — has taught us. Only one methodological question remains to be answered, and then we shall pass on to the applications of our results.

THIRD LECTURE.

In my last lecture I discussed a new method of investigating antique prose-metre. We concluded that the method of Marbe gives only a very bad idea of the metrical tendencies which may occur in antique prose. We answered the question what prose we were allowed to consider as absolutely unmetrical. We investigated the sentence-metre of Demosthenes, and also his clausula. We stated that the clausula of Demosthenes had in most cases to be regarded as a metrically non-separate part of the whole sentence, but that in one case out of five it was —⏑—⏑. Indeed this figure was higher than we could expect. From this we inferred that Demosthenes has one clausula which is felt as something separate, viz. the double trochee.

You will have seen that in dealing with antique prose-metre I never quoted the antique rhetoricians, where they are speaking of prose-metre, nor the orators themselves. I had a reason for doing so. From a methodological standpoint it is necessary to investigate first what objective facts we can find, to treat afterwards the notions and ideas of the ancients, which bear on them. If this rule is neglected, one may be tempted, as e.g. Norden to compose a scheme without any ground. Or one may

be tempted as e.g. Blass, Zander, and Bornecque, to explain the facts from an hypothesis, instead of deriving an hypothesis from the facts. It is necessary first to ascertain what hypothesis can be inferred from the facts, and only then to see whether it corresponds with the opinions and assertions of the ancients.

Before I go on treating the metre of Plutarch and some other authors, I must deal with another merely theoretical question.

It has been found that in Demosthenes the frequency of the double trochee in the sentence was 12·4 %, in the sentence of Thucydides 14·1 %, in the clausula of Thucydides 14·2 %.

On the other hand in the clausula of Demosthenes we got 18·9 %. We concluded that the difference between 12·4 % and 18.9 % was too great to be ascribed to chance only. Were we justified in doing so?

To answer this question we shall have to consult the theory of probability. Suppose that the tendency which causes the frequency of a certain form, is quite the same in two different prose-texts, how great is the probability that we shall get a difference as e.g. between 12 % and 18 %?

We may calculate the probable error of a percentage. This probable error mainly depends on the material investigated. The larger the number of cases investigated, the more the figures will approach to the 'ideal' figures. For

the exact meaning of the probable error I refer here to the textbooks on the theory of probability.

The probable error of our percentage 12·4 for the form —⏑—⏑ in Demosthenes is $0{\cdot}6745 \sqrt{\frac{12{\cdot}4\ (100-12{\cdot}4)}{1000}}$. This means that it is as probable that the real figure lies between 12·4—1·0 and 12·4 + 1·0, or between 11·4 and 13·4, as that it is lower than 11·4 or higher than 13·4. The greater the difference from these figures, the greater the improbability that this difference will occur. If we have therefore a difference such as e.g. between 12·4 and 18·9, the probability that this difference is due to chance is very small. We cannot but think that there is something behind it. The probability, however, that no special cause, no special tendency brought it about is not altogether impossible. As certainly as we can calculate that in casting a die we have 1 : 6 chance to get a 3, we can calculate the probability that exists in our case. The probability that no real difference exists, between 12·4 % and 18·9 % in our case is smaller than 1 : 5000.

We shall now pass on to the metres of Plutarch.

As we saw in our first lecture, Plutarch avoids the accumulation of long syllables. You will understand that here the law of increasing avoidance prevails. Whoever avoids ————— will presumably avoid ——————— in

an even higher degree, and even more ———————, and so on.

This is really the case with Plutarch.

It is possible, as we saw above, to express the degree in which the different series of syllables are avoided by a quotient: a quotient found by dividing the percentage for a certain form in Thucydides by that for the same form in Plutarch.

So the quotients are here:

		Thucydides.	Plutarch.	Quotient.
(113—120)	————	10·3	6·3	1·6 (—)
(121—124)	—————	3·8	3·3	1·1 (—)
(125—126)	————————	1·7	0·8	2·4 (—)
(127)	—————————	1·7	0·8	2·1 (—)
(128)	——————————	2·8	0·8	9·3 (—)

The form 128 comprises series of eight and more than eight long syllables.

An even clearer insight into the metre of Plutarch is given by a comparison of his sentence metre with his clausula. To understand this, I refer you to the corresponding figures. Clearly three preferred forms must be regarded as a separate part of the sentence, viz.:

⏑⏑⏑⏒

—⏑—⏒

—⏑——⏒

These three forms comprise the 'clausula' of Plutarch. The other forms do not belong to his favourite sentence endings: they are partly metrically indifferent to him, partly avoided. The 'famous' double cretic, which modern scholars like to consider as a preferred form everywhere, has no greater preference than other forms. The form —⏑—⏑—⏑— is often combined with —⏑—⏑ and —⏑—⏑—⏑— in one scheme

—⏑—⏑
—⏑—⏑—
—⏑—⏑—⏑,

for it is still often thought that the cretic is the base of all prose-metre. This form, however: *πᾶσιν ἐς χεῖρας ἐλθεῖν*, is probably not avoided in a higher degree than the other subdivisions of —⏑—⏑. The quotients are:

		Plutarch. Sentence-metres.	Clausula-metres.	Quotient.
81—82	⏑⏑⏑—⏑—⏑	1·50 %	3·10	2·07 (+)
83—84	—⏑⏑—⏑—⏑	2·00	3·15	1·58 (+)
85—86	⏑—⏑— ⏑—⏑	1·60	2·55	1·59 (+)
87—88	— —⏑—⏑—⏑	1·80	3·85	2.14 (+)
89—90	⏑⏑—— ⏑—⏑	1·90	4·10	2·16 (+)
91—92	—⏑— —⏑—⏑	1·40	4·05	2·89 (+)
93—94	⏑— — —⏑—⏑	2·20	4·25	1·93 (+)
95—96	— — — —⏑—⏑	1·30	4.05	3·12 (+)

The quotient for —⏑—⏑—⏑ is 2·89, that for ———⏑—⏑ is 3·12. The other forms, it is true, give lower quotients. Is there indeed any connection between the double trochee preceded by a cretic, and the same form preceded by a molossus? Only a more extensive investigation can give a satisfactory answer to this question. Suffice it here to have stated the method by means of which it can be answered.

The common method of investigating the clausula is that of comparing only the figures of the second column (clausula metres) with each other. It will be clear to you that such procedure has no scientific base, nor can it give any reliable results.

The double cretic, indeed, can hardly be regarded as metrically indifferent to Plutarch. Its frequency in the sentence-endings does not reach the figure of its frequency in the whole sentence. So it has been avoided.

	Plutarch.		
	Sentence-metres.	Clausula-metres.	Quotient.
—⏑—⏑	13·90 %	29·10	2·09 (+)
—⏑—⏑—⏑—⏑	1·40	4·05	2·89 (+)
—⏑———⏑—	4·00	2.35	1·70 (—)

In passing I drew your attention to the form —⏑—⏑—⏑. Whether it is felt as a separate part of the sentence, is not quite certain. That —⏑—⏑ is

a good clausula can hardly be doubted. But whether the length of the clausula in such cases, where the double trochee is preceded by a cretic, comprises more than four, viz. seven syllables: *πᾶσιν ἐς χεῖρας ἐλθεῖν,* is yet a problem. Only to state this problem, to show the way to its solution, and to point out its importance, I undertook as my task.

Some years ago Mr. Henderson in the American Journal of Philology tried to trace the origin of the Greek accent-clausula to the Greek quantitative clausula, whereas other scholars are inclined to think that it is of Latin origin.

This later Greek clausula shows only a few favourite forms, viz.:

	ἀνθρώπους παιδεύουσιν	...ˊ ˘ ˘ ˊ...;
or	*ἀνθρώπους λιπεῖν*	...ˊ ˘ ˘ ˊ...;
or	*ἀνθρώπων καταλεγόντων*	...ˊ ˘ ˘ ˘ ˘ ˊ...;
or	*λέγουσι παιδευόντων*	...ˊ ˘ ˘ ˘ ˘ ˊ...

In general, the main rule of this Greek accent-clausula is: between the two last accented syllables of the sentence or colon there are two or four unaccented ones.

Now, if the supposition is correct that there is a certain connection between long syllables and accented ones in later Greek, and that this connection shows itself in the clausula, it may be possible to find an evolution from

—⏑——⏑

to ∽́ ∽ ∽ ∽́...,

i.e. from the classic or quantitative to the accent-clausula. This accent-clausula does not distinguish between long and short syllables. Therefore it is desirable to use the sign ∽ for a syllable, the quantity of which is not felt; a syllable anceps, on the other hand, we shall still indicate by ⏓.

Now, we can perhaps explain ∽́ ∽ ∽ ∽́... from —́⏑—́⏑. In this way —́⏑——⏑—́ or —́⏑——⏑—́— is regarded as the original form of ∽́ ∽ ∽ ∽ ∽ ∽́ ∽: for instance *πᾶσιν ἐς χεῖρας ἐλθεῖν* or *χρησιμώτατον φαίνεται* becomes *πᾶσι καταλιπεῖν*. If, however, it could be demonstrated that —⏑——⏑— and —⏑——⏑—⏑, if anywhere, occur as favourite clausulae only in one or a few Greek authors, and this is really my opinion, this theory cannot be upheld.

As far as this we have regarded the 'clausula' as the end of the sentence consisting of a combination of long and short syllables which is preferred to other combinations. We may call it the positive clausula. There exists, however, another 'clausula', being the end of a sentence, but consisting of a combination of long and short syllables, which combination is avoided. This negative clausula is known to us from Plutarch: it is formed there by the series ————.

You should rightly understand what I mean. We have seen in the preceding chapter that the series ———, ———, etc. in the sentence are avoided by Plutarch. This is probably also the case in the sentence-endings. When, however, it is said that the form ——— should be regarded as a negative clausula, we mean to say that the clausula ——— is avoided as such, i.e. that the form ——— at the end of the sentence is avoided in a higher degree than in the sentence. This form, therefore, at the end of the sentence in Plutarch, is metrically separated. In ordinary Greek prose its frequency is nearly 20·4 %. In Plutarch it is 11·4 % throughout the sentence. In his clausula it is 7·8 %.

In passing we involuntarily approach a question, which is intimately connected with these problems.

By modern scholars the clausula is often used in defence of their opinions about readings of manuscripts, or about conjectures. Many conjectures have been objected to as they would give bad clausulae, others have been defended as they would give good forms. Of course the preference shown by a writer for a particular clausula may be used as an argument in favour of a reading or a conjecture. But how?

We have seen that Plutarch has only three favourite clausulae:

⏑⏑⏑—

—⏑——⏑

—⏑—⏑.

If, however, we compare the frequency of the different clausula-forms in Plutarch with that in Thucydides, other and more numerous differences appear. It is seen e.g. that the form —⏑—⏑⏑⏑ *κεκτημένῳ μέτρια* in Plutarch at the end of the sentence is much more frequent than in Thucydides : 3·85%—2·0%, i.e. nearly two times as many occur in Plutarch. Whether this is due to a preference which exists in the clausula only, or whether this preference also exists in the whole sentence, is a matter of no importance here: there is undoubtedly a tendency, a preference for the form —⏑—⏑⏑⏑ at the end of the sentence. As to textual criticism we must just as well regard it as a favourite clausula as the forms ⏑⏑⏑—, —⏑—⏑, —⏑——⏑. There is only this difference that these forms are preferred only or mainly at the end of the sentence: the first mentioned form, however, is preferred everywhere.

We must, therefore, sharply distinghuish between two tendencies:

(1) a tendency in favour of forms in the whole sentence, or the reverse.

(2) a tendency in favour of forms in the clausula only, or the reverse.

The first mentioned tendency may be measured by comparing Plutarch's sentence-metre with that of Thucydides. In our example the form ————— in Thucydides in the sentence reaches 20·3 %, in Plutarch only 11·4 %. The last mentioned tendency has been measured by us by comparing the figures of the clausula of Plutarch with those of the sentence of Plutarch: we got 11·4 % and 7·8 %, from which it appeared that also here a negative clausula exists. The combination of the two tendencies results into the difference which is obvious when we compare the clausula of Plutarch with that of Thucydides: 7·8 %—18·3 %.

If, therefore, we want to apply the results of clausula investigations to textual criticism, we have to take the result of the two tendencies into account. So we have to take into account the deviations of the clausula of Plutarch from the clausula of Thucydides.

These facts are not irrelevant. For we might be inclined to consider the forms ⏑⏑⏑—, —⏑—⏑, and —⏑———⏑ as the only three good clausulae. Zielinski, as is known to you, did not even consider the possibility of making a comparison of the clausula-figures with sentence-metres, nor with non-metrical prose for the sake of textual criticism. According to him a frequent form is a preferred form, a preferred form in textual criticism is more likely to be the authentic form than the others.

All his notions on this point are most confused and naive.

It is clear e.g. that the form *κεκτημένῳ μέτρια*, —⏑—⏑⏑⏑, in Plutarch at the end of the sentence is just a little more frequent than in the sentence: 3·85 %— 3·70 %. When we know, however, that this form as a sentence-ending is much less frequent in Thucydides, viz. 1·8 %, it is obvious that another tendency exists which has produced the figure 3·85. Only this tendency we have to take into account in textual criticism.

This distinction becomes even more important when we know that the form —⏑——⏑ was felt by Plutarch as a good clausula: *ἀνθρώπους κομιζόντων*: in the sentence 6·5 %, at the end 9·8 %. Yet in the clausula of Thucydides this form is nearly as frequent: 9·5 %. The sum, the result of the two tendencies which have been spoken of above is therefore very small. Obviously the former tendency (i.e. the one bearing on the frequency of forms in the whole sentence) is negative in Plutarch, the latter (i.e. the one bearing on the frequency of clausula forms only) is positive in Plutarch: they neutralize each other. As to textual criticism, therefore, we may regard the clausula form —⏑——⏑ as metrically indifferent.

To sum up, for textual criticism we have to take the result of two tendencies into consideration. To find out this result we may compare the clausula of a writer with that of Thucydides. If we do so, we cannot expect

to get so simple results as when we compare Plutarch's clausula with his sentence-metre. On the contrary, we shall often get a confused system of tendencies in which no principal features at first sight are to be seen. The double origin of the differences between the clausula of Thucydides and the clausula of Plutarch necessitates for instance the form *κεκτημένῳ μέτρια* to be regarded as a good clausula for textual criticism, in spite of the fact that, as a clausula, it does not form a metrically separated part of the sentence.

It will be expected that the clausulae of the *Συγκρίσεις* of Plutarch show the same peculiarities as those of his Lives. Already a very small material (246 cases) gave me the following figures:

	Lives.		*Συγκρίσεις*	Thucydides
	Sentence-metre	Clausula-metre	Clausula-metre	Clausula-metre
—⏑—⏑	13·90%	29·10%	27.00%	14·2%
⏑⏑⏑—	6·10%	9·95%	9·00%	5·2%
—⏑——⏑	6·50%	9·80%	9·00%	9·4%

By investigating more material we shall of course find an even more striking agreement.

In conclusion we would ask the following question. Are ⏑⏑⏑—, —⏑—⏑, —⏑——⏑, the real length of the clausula? Is it not —⏑⏑⏑—, or —⏑——⏑—⏑,

or ——⏑——⏑? The first is indeed the case. We shall try to determine again the indifferent syllable.

Plutarch.

(the quantity of the final syllable is neglected.)

		Sentence-metre	Clausula-metre	
81	⏑⏑⏑⏑—⏑—⏑	0·50	0·95	+
82	—⏑⏑⏑—⏑—⏑	1·00	2·15	+
83	⏑—⏑⏑—⏑—⏑	1·40	1·50	+
84	——⏑⏑—⏑—⏑	0·60	1·65	+
85	⏑⏑—⏑—⏑—⏑	0·90	1·55	+
86	—⏑—⏑—⏑—⏑	0·70	1·00	+
87	⏑——⏑—⏑—⏑	0·90	1.75	+
88	———⏑—⏑—⏑	0·90	2 10	+
89	⏑⏑⏑—⏑—⏑	0·90	1·60	+
90	—⏑⏑—⏑—⏑	1.00	2.50	+
91	⏑—⏑—⏑—⏑	0·50	2·10	+
92	——⏑—⏑—⏑	1·90	1·95	+
93	⏑⏑——⏑—⏑	1·20	1·80	+
94	—⏑——⏑—⏑	1·00	2·45	+
95	⏑———⏑—⏑	0·70	2·20	+
96	———⏑—⏑	0·60	1·85	+

		Sentence-metre	Clausula-metre	
1	⏑⏑⏑⏑⏑⏑⏑—	0·10	0·15	+
2	—⏑⏑⏑⏑⏑⏑—	0·20	0·15	
3	⏑—⏑⏑⏑⏑⏑—	0·30	0·40	+
4	——⏑⏑⏑⏑⏑—	0·20	0·65	+
5	⏑⏑—⏑⏑⏑⏑—	0·20	0·40	+
6	—⏑—⏑⏑⏑⏑—	0·20	0·65	+
7	⏑———⏑⏑⏑—	0·30	0·35	+
8	———⏑⏑⏑⏑—	0·50	0·30	
9	⏑⏑⏑—⏑⏑⏑—	0·70	0·95	+
10	—⏑⏑—⏑⏑⏑—	0·90	1·55	+
11	⏑—⏑—⏑⏑⏑—	0·60	0·85	+
12	——⏑—⏑⏑⏑—	0·60	0·95	+
13	⏑⏑——⏑⏑⏑—	0·90	1·35	+
14	—⏑——⏑⏑⏑—	0·90	1·40	+
15	⏑———⏑⏑⏑—	0·40	1·40	+
16	———⏑⏑⏑—	1·10	1·50	+

		Sentence-metre	Clausula-metre	
105	⏑⏑⏑—⏑—⏑	1·10	0·65	
106	—⏑⏑—⏑—⏑	0·80	1·45	+
107	⏑—⏑—⏑—⏑	1·10	1·20	+
108	——⏑—⏑—⏑	0·70	1·45	+
109	⏑⏑——⏑—⏑	0·40	0·90	+
110	—⏑——⏑—⏑	0·80	1·35	+
111	⏑———⏑—⏑	1·00	1·45	+
112	————⏑—⏑	0·60	1·35	+

From these tables we can derive the following:

Plutarch.

		Sentence-metre	Clausula-metre	Quotient
81—88	⏑—⏑—⏑	6·90	12·65	1·83 (+)
89—96	——⏑—⏑	7·80	16·45	2·11 (+)
1—8	⏑⏑⏑⏑—	2·00	3·05	1·53 (+)
9—16	—⏑⏑⏑—	6·10	9·95	1·63 (+)
105—108	⏑—⏑——⏑	3·70	4·75	1·28 (+)
109—112	——⏑——⏑	2·80	5·05	1·80 (+)

The slight differences between each couple of quotients (1·83—2·11, 1·53—1·63, 1·28—1·80) prove that the quantity of the preceding syllable is nearly or entirely indifferent. That, however, a long preceding syllable may be preferred to a short one, cannot be denied.

The clausula of Plutarch has been neglected by recent scholars. The same is true for that of Philo Judaeus. And yet also here exists a system of metrical tendencies. It shows many peculiarities in common with Plutarch. The sum total of the favourite forms in Philo is 84·4 %, the sum total of the same forms in Thucydides is only 52·1 %. The number of exceptional cases in Philo is 15·6 %, the number of the same forms in Thucydides reaches 47·9 %. A clear view of Philo's clausula is given by our graphical scheme. In the same way I shall give you a comparison of the corresponding figures in Thucydides (see curves).

As to these curves you will remember what I have said before: perhaps the slight differences which we are

able to state between Thucydides' sentence-metre and clausula-metre are not only and exclusively to be ascribed to chance. Perhaps they are caused by some metrical tendencies. Perhaps these tendencies will prove to be even more obvious in the more rhetorical than in the less rhetorical parts of his work, although Röllmann's investigations may have proved the reverse. In no case, however, are these differences so great here as in Plutarch, or as in Philo.

In Philo we clearly see some culminating points in the curve. If we try to investigate them, we get for the clausula of Philo the following scheme:

		Quotient.	
I	— ⏑ ⏑ — ⏑ ⏒	2·0 (+)	
II	— ⏑ ⏑ ⏑ ⏒	1·6 (+)	
III	— ⏑ — — ⏒	1·6 (+)	
	⏑ ⏑ ⏑ — — ⏒		1·8 (+)
	— ⏑ ⏑ ⏑ — ⏒		1·9 (+)
	— ⏑ — ⏑ ⏑ ⏒		1·2 (+)
	⏑ ⏑ ⏑ — ⏑ ⏑ ⏒		4·5 (+)
IV	— ⏑ — ⏒	1·4 (+)	
V	— ⏑ — — ⏑ ⏒	1·2 (+)	
	— — — — ⏑ ⏒		1·1 (+)

The first form: *κτήματ' ἐλείπετο* is entirely absent in Demosthenes, Plutarch, and, as far as I investigated, in Isocrates, as a favourite clausula. Very frequently it occurs

later on in Chariton (5·9 %), and also in Plato it is felt as a favourite form.

The form ⏑⏑⏑⏑⏓, *γενομένων* is very frequent in nearly all metrical Greek authors. It is the typical Greek clausula, which is entirely absent in Latin. In Philo it is only sought, if a long syllable precedes. For, if we try to determine the length of the clausula, we get the following figures.

	Philo. Sentence-metre	Clausula-metre	Quotient
⏑⏑⏑⏑⏓ *τὰ γενόμενα*	3·0 %	1·0 %	3·0 (—)
—⏑⏑⏑⏓ *τῶν γενομένων*	5·9 %	9·6 %	1·6 (+)

The preceding syllable, therefore, is not indifferent. If the clausula ⏑⏑⏑⏓ is to be a good clausula, it ought to be —⏑⏑⏑⏓.

The form ⏑⏑⏑—, the fourth paeon, is, as you know, much recommended as a clausula by Aristotle — we shall speak of it below.

The third and fourth form: *πᾶσιν ἀνθρώποις*, and *ἐκλέγουσιν* occur in nearly all our authors: only Plato's later works avoid them, even to an ever increasing degree.

Frequency of the clausula—⏑—⏓.

	Thuc.	Demosth.	Plut.	Philo	Plato Rep.	Plato Laws
ἐκλέγουσιν	14·2	18·9	29·1	18·2	13·9	5·7
πᾶσιν ἀνθρώποις	9·4	8·0	9·8	15·8	6·5	6·0

In this connection I feel obliged to draw your attention to a fact of the highest importance which occurs again also in Latin. I think, we are allowed to regard the forms

τὰ γενόμεν' ἀνθρώποις ⏑⏑⏑——⏓

πᾶσι παρέχουσιν —⏑⏑⏑—⏓

πᾶσι κατελειπόμεθα ⏑⏑⏑—⏑⏑⏓

as by-forms of —⏑——⏓. In Plutarch, where only three forms were preferred, we were not allowed to do so. In grouping the clausula-forms we are not allowed to arbitrarily substitute two short syllables for one long syllable. By so doing we should often make a bad clausula of a good one. But here the preference which appears for all these forms makes it very probable that there is some connection between them. Now, these by-forms appear to be preferred in a higher degree than the principal form. Of course, their absolute frequency is much lower, but, I think, you will not regard this absolute frequency as a criterion of preference any more! Therefore, we ought not to regard this notion 'principal form' as denoting a more preferred form than the 'by-forms', as is often thought. On the contrary, it denotes only the form which comes first in our scheme as it contains the lowest number of short syllables — nothing more. We might say: they are the most simple forms. As regards the connection between them and the by-forms we will suspend our judgment on this point for a moment.

The significance of the fifth form *πᾶσι τιμωμένοις*, the dicretic clausula, is generally overestimated. It is often thought that the cretic is the basis of all prose-metre, and from this postulate it is deduced that the double cretic is one of the most preferred forms. The deductive method in investigating antique prose-rhythm is, however, arbitrary and absolutely wrong. Only in a few writers, i.e. in Philo and in Plato the clausula —⏑——⏑— occurs as a favourite form.

As you will see, Philo avoids the forms ————, ——————, etc.

In this way we get some insight into the simple means by which the ancients built their admirable prose-rhythm. The right feeling for its details we miss almost entirely. Only indefatigable industry of investigation and very long practice of reading aloud can give us back something of the beauty of the ancients.

FOURTH LECTURE.

As far as this I have dealt only with those authors in whose metre I was not able to state changes in the course of their activity. Probably there is no change, no evolution in their clausula. Quite different is the case with the artist of whom I intend to speak to you now, with Plato.

In order to give you a superficial idea of the evolution of his metre, I shall remind you of our former results which we obtained with the help of the method-Marbe for the Republic, and for the Laws. We may regard the Republic as the end of the first group of his works — the Laws not only as the end, but also as the culmination of a second period of his evolution. Plato is his later years prefers series of short syllables as obviously as he avoids —⏑— and —⏑⏑.

Even more important than his sentence-metre is that of his clausula. Not only as to his clausula, the Laws show a certain culmination. It is very interesting to compare the frequency e.g. of the form —⏑—⏓ in the Republic with that of the Laws.

Frequency of the clausula —⏑—⏓.

(In percentages).

Thucydides (first thousand)	14·0	Phaedrus	16·4
Thucydides (second thousand)	14·4	Convivium	14·3
Demosthenes	18·9	Phaedo	14·1
Philo	18·2	Theaetetus	13·5
Chariton	21·3	Parmenides	16·0
Lesbonax	11·4	Republic:	
Herodes	16·1	Book I	12·5
Libanius	16·1	II	14·9
Plutarch (first thousand)	29·6	III	12·2
Plutarch (second thousand)	28·6	IV	12·1
Plato:		V	12·6
Apology	14·1	VI	15·8
Crito	15·8	VII	13·5
Protagoras	14·0	VIII	16·1
Charmides	13·3	IX	14·3
Laches	13·0	X	16·9
Lysis	14·7	Philebus	5·0
Euthyphro	12·7	Politicus	7·1
Gorgias	12·2	Sophistes	9·7
Hippias minor	15·2	Critias	1·3
Euthydemus	15·8	Timaeus	15·2
Cratylus	16·1	Laws:	
Meno	14·2	Book I	8·2
Menexenus	11·4	II	7·5
		III	5·0
		IV	5·3
		V	4·5
		VI	3·3

VII	6·4	XII	4·6
VIII	6·7	Epinomis	
IX	5·7	(first hundred)	4·0
X	5·6	Epistula 7ma	9·0
XI	4·5		

In the Laws the following clausulae form a separate favourite part of the sentence:

I ⏑⏑⏑⏒
II (—) ⏑⏑—⏑⏒
III (—) ⏑——⏑⏒
IV (—) ———⏑⏒
V (—) ⏑⏑⏑—⏒

Only one of these forms we find again in Plutarch, viz. ⏑⏑⏑—. It is the famous fourth paeon. By way of exception I refer to a passage in Aristotle, one of the few passages of the ancients the contents of which have been confirmed by us in a most striking manner. He says (Rhet. III 8. 1409a 2):

ἔστι δὲ παιᾶνος δύο εἴδη ἀντικείμενα ἀλλήλοις, ὧν τὸ μὲν ἓν ἀρχῇ ἁρμόττει . . . ἕτερος δ'ἐξ ἐναντίας, οὗ βραχεῖαι (⏑⏑⏑) *ἄρχουσι τρεῖς, ἡ δὲ μακρὰ τελευταία* (⏑⏑⏑—).

μετὰ δὲ γᾶν ὕδατά τ' ὠκεανὸν ἠφάνισε νύξ.

And a little above:

. . . παιάν, ᾧ ἐχρῶντο μὲν ἀπὸ Θρασυμάχου ἀρξάμενοι . . .

The fourth paeon is absent in Latin — it is the typical Greek clausula.

Most important is the occurrence of (—)⏑——⏑— as a clausula. To this clausula may belong:

		Quotient.
πᾶσιν ἐγγίγνεται	(—)⏑——⏑—	(+)
πάντων ἐκγίγνεται	(—)———⏑—	(+)
πᾶσιν ἐγγίγνεσθαι	—⏑———	(—)

There is an important reason for joining these forms: in all of them there is a preference to use a long final syllable, and not a short one. I can find no other hypothesis to explain these facts than that the last three syllables are felt to be a cretic —⏑—, or a molossus ——— substituted for a cretic.

To show this clearly I must make a digression to speak to you for a moment of the so-called syllaba anceps. In my investigation I myself neglected the quantity of the last syllable, except in Plato. For this investigation would have taken up much time: instead of 128 cases, we should have had to investigate 256 forms. It is the general opinion that the quantity of this last syllable is indifferent. Josephy, however, rightly doubted the correctness of this opinion, which doubt he based on most convincing statistics. The value of these statistics is questioned by Münscher (Berl. Philol. Wochenschr. 1915, col. 000) on the authority of ancient texts: a methodological mistake. The passages of Cicero and the others bearing on the clausula have deceived

us even more than those of many recent scholars: we had better put them aside. Besides we may cite the text of Aristotle in favour of the opposite opinion.

But all these questions are very unimportant. The only important one is this: what do statistics show us?

Statistics show that in the Laws a metrical form with a long final syllable is always more frequent than the same form with a short final syllable in the sentence as well as in the clausula. In connection with the greater frequency of long syllables in general we could not have expected otherwise. Only one form, however, deviates from this rule, in the sentence as well as in the clausula, viz.: —⏑⏑⏑; this form occurs more frequently than —⏑⏑—. But this need not surprise us, when we remember that Plato seeks the tribrach, and that he avoids the choriamb. We may draw a curve denoting the frequency of the forms ending in ⏑, as well as a curve denoting the frequency of the same forms ending in —. It is most interesting to see how the forms ⏑—⏑⏑⏑ and ——⏑⏑⏑ are more frequent than ⏑—⏑⏑— and ——⏑⏑—. For all the other forms the ratio is quite the reverse. In this way it appears again and again that even the most subtile metrical tendencies are shown by means of simple statistics. And it is quite interesting to observe that all our figures bearing on Plato are derived from a paper of Kaluscha who made a rather curious

use of his statistics: the idea, the notion of percentage seems to be unknown to him.

So we see that the last syllable in Plato is not anceps. Now the same is true for the form —⏑——⏑⏓, where *τῆς γραφείσης δίκης* is preferred to *χρημάτων χρήσιμα*. The quotient for the first form as a clausula compared with the sentence-metre is larger. The same holds good for —⏑—————— and —⏑———⏑.

After this digression on the 'syllaba anceps' we return to the clausula of the Laws. It appears that in the dicretic form (—⏑———⏑—) either cretic can, so to say, be replaced by a molossus. A double molossus, however, would destroy the character of the cretic clausula.

Besides to the positive clausula we should also pay attention to the negative one. The latter is more important in Plato than anywhere else. The double trochee, for instance, is sought by most authors. Now, only few forms are avoided by Plato to such a degree as the double trochee: *ἐκλέγουσιν*. On the whole we can say that the later a work has been composed, the lower the percentage.

You will remember that the form *πᾶσιν ἀνθρώποις*, —⏑———⏑, plays a part in Greek prose metre: even this form is avoided in Plato. For the bad clausulae we get the following scheme:

I —⏑⏑⏑

II —⏑⏑—⏑ (—⏑⏑—⏑ seems to be preferred to —⏑⏑——).

III —⏑—⏑

IV ——— (including —⏑———⏑, ————, ——————— etc. as clausulae).

The avoidance of the clausula heroica is important for this reason that it is a symptom of a general psychological law, which is here and there very obvious in antique prose-rhythm. Any metre in any way connected with poetry is avoided. Bornecque in his most important work 'La prose métrique dans la correspondance de Cicéron' is even inclined to believe that the whole prose-metre of Cicero is to be explained by this factor. So he acknowledges only the negative clausula. He says among others on p. 198:

'Je crois, d'ailleurs, comme M. Meyer, qu'on peut donner de la prose métrique une théorie simple: sans me flatter de l'avoir trouvée, je me hasarde à exposer celle que les faits m'ont suggérée... Le seul précepte absolu que nous donnent, non seulement Cicéron, mais les autres grammariens, est d'éviter que la fin d'une phrase ressemble à une fin de vers etc.'

This opinion is very one-sided. Probably you will agree with me that the metre of Demosthenes, which recognises only the double trochee as a clausula cannot be explained in this way. Also the curves of the metre

of Cicero and of Livy will convince you of the existence of the positive clausula.

The main opinion of Bornecque, however, is this: the form of the word preceding the last one is determined by the form of this last one. This is even his definition of metrical prose: 'On dit qu'un texte est écrit en prose métrique lorsque la forme métrique du dernier mot de chaque phrase détermine la forme métrique des mots qui précèdent le mot final' (La prose métrique, p. 1). We can only partly agree with him. If Demosthenes favours the form —⏑—⏑, he likes to have before a last word *αὐτούς* a form like *ποιοῦσιν*, in order to get the clausula *ποιοῦσιν αὐτούς*. If, however, the last word is *ἐκλέγουσιν*, we do not understand how it can have influenced the preceding one; for we are able to accurately determine the length of the clausula, and to state that *ἐκλέγουσιν* forms in itself a beautiful clausula, and that all the preceding words are indifferent. By means of this argument his theory is, as far as I see, refuted in a most simple and convincing manner.

In the meantime Bornecque's remarks should not be regarded as unimportant. They clearly show the significance of the negative clausula. They are illustrated for instance by the clausula heroica of Cicero. He seldom uses it, but wherever he uses it, it is seldom the end of an hexameter. We know that a good Latin hexameter

in Cicero's days did not end in a four- or five-syllabic word or word-group. The current forms are

vincla resovit, and
lamentabile regnum.

Only a few Greek words are excepted, e.g. Tyndaridarum, a phenomenon which need not be explained here. If, however, we look more closely at the clausulae heroicae of Cicero, we see that they are not hexameter-endings. I quote here some clausulae heroicae cited by Zielinski from the speeches of Cicero (Clauselgesetz p. 751).

Quinctius cupit commemorare
tota res transigeretur
paulo post commemorabo
praetura Siciliensi
passuum conficerentur
videt discruciatur
cautius composuisses
pecuniam corripiendam
copiosus est, commemoravit
conscios flagitiorum.

Although Cicero avoids the real hexameter-endings, he tolerates the use of such forms as caperentur and perlegerentur to a certain degree. So important a part does the avoidance of poetical metra play in prose metre. The avoidance of —⏑—⏑ in Plato can also be explained in this manner.

It is very interesting to note how gradual the evolution is in the frequencies of some forms in the different periods of Plato's life. Bij means of hypothesis we can distinguish five chronological groups:

I. Protagoras, Crito, Apology.

II. Charmides, Laches, Lysis, Euthyphro, Gorgias, Hippias min., Euthydemus, Cratylus, Meno, Menexenus, Phaedrus, Symposium, Phaedo, Theaetetus, Parmenides.

III. Republic.

IV. Philebus, Politicus, Sophistes, Critias, Timaeus.

V. Laws.

This distinction is made by Kaluscha in his paper on the chronology of Plato's dialogues. It contains valuable material for the clausula, a material which is intentionally only partly used, and so far as it is used in a rather curious way. No comparison whatever with sentence-metre is made. The notion 'percentage' seems, as I said before, to be unknown to him. I will not, however, speak about this matter here.

The gradual evolution to which I alluded appears most clearly from the following figures.

Group	I	II	III	IV	V
—⏑⏑—⏑⏓	3·5%	5·0	6·2	7·3	12·6
(—)⏑——⏑⏓	6·9	7·6	8.1	9·1	11·6
—⏑⏑⏓	6·1	5·7	5·5	5 2	3·7
—⏑⏑—⏓	7·7	7·1	7·0	3·2	1·3
—⏑—⏓	14·3	14·3	13·9	9·1	5·7%

These figures have been calculated from the material collected by Kaluscha, a material which we are sorry to say he did not fully work out. Some of the clausulae show a gradually increasing preference for them, others a gradually increasing avoidance. And we are allowed to ask: what about the frequency of these forms in those of Plato's works the chronology of which is not quite certain?

The history of the opinions of modern scholars about the chronology of his dialogues is somewhat as follows. The students who first occupied themselves with it all agreed on this point that the Phaedrus was one of his earliest works. As there were doubts about the correctness of this theory, careful investigations were made by many scholars, but even after these investigations most of them adhered to this theory.

Some time later, however, statistical evidence seemed

to show very clearly, that the Phaedrus was written in a later period. Raeder is quite right in saying (p. 248): "... Meistens wird aber das Verhältnis so dargestellt, als ob die aus dem Inhalt geschöpften Argumente den sprachlichen Kriterien schroff gegenüberstanden".

It is easy to understand that people should try to overcome this difficulty, it was even a scientific requirement, and he who has any faith in statistics had to join the few who have placed the Phaedrus late. Owing to this there were scholars who, on the ground of, or rather with the help of the criteria which were formerly known, tried to assign a later place to the Phaedrus, in order to make their ideas correspond to the results of statistical investigations. In this connection I may quote Pohlenz, who says about Von Arnim (Götting. Gelehrte Anz. 1916, p. 259): „Es war also nicht Willkür oder Zufall, wenn fast alle modernen Forscher den Lysis mit dem Symposion in engste Verbinding brachten, und wenn v. A. diese gewaltsam löst, so wird man hier wirklich den Gedanken nicht los, dass er aus seiner Sprachstatistik die Ueberzeugung von der frühen Abfassung des Lysis mitbrachte". Nearly the whole of modern literature on this subject moves in the same direction. In this connection a particular preference is shown in the different works for the treatment of parallel passages in different works, the chronology of which one would like to determine. Some

of them, such as Von Arnim, are of opinion that the result of their investigation 'vollkommen ausreicht die Priorität des Phaidros unwiderleglich zu beweisen'. Others, such as W. E. J. Kuiper (Tijdschrift voor wijsbegeerte, jg. XI) are honest enough to admit that the treatment of parallel passages will often convince the writer only. Some philosophers are, in spite of all statistical investigations, convinced that the Phaedrus cannot have been written late; this view which was formerly held by Schleiermacher is still held by Natorp, Gomperz, and Ovink. But most of them have an other opinion, and wrongly. For statistical investigations on this subject, as it happens so often in other cases, have failed on account of the well-known statistical error: incorrect and wrong grouping. Too little account has been taken of the fact that different tendencies can lead to the same results. As easily as Kaluscha, a disciple of Von Arnim, has tried to determine the chronological order of Plato's later works, he might have proved that the Phaedrus has been written in the earliest period. For, as you will remember, there are at least five clausulae-forms in the frequency of which a gradual development of Plato's metre is obvious. If we take the frequency of these very forms into account, we should be inclined to date the Phaedrus as early as possible.

Plato.

Frequency of clausula-forms.

	Phaedrus	Chronological group				
		I	II	III	IV	V
— — ⏑ ⏑ ⏓	7·4	6·1	5·7	5·5	5·2	3·7
— ⏑ ⏑ — ⏓	9·4	7·7	7·1	7·0	3·2	1·3
— ⏑ — ⏓	16·4	14·3	14·3	13·9	9·1	5·7
— ⏑ ⏑ ⏑ ⏓	4·9	3·5	5·0	6·2	7·3	12·6
(—) ⏑ — — ⏑ ⏓	6·2	6·8	7·5 -	8·1	9·1	11·6

As you will notice: even the forms — — ⏑ ⏑ ⏓, — ⏑ ⏑ — ⏓, and — ⏑ — ⏓, are more frequent in the Phaedrus. The very clausulae — ⏑ ⏑ ⏑ ⏓ and (—) ⏑ — — ⏑ ⏓, which are preferred in the later period are less frequent here. You will be inclined to suppose that we have here the commencement of a gradual metrical evolution. This, however, is not the case: quite other laws are at work.

Among the works of Plato the Phaedrus is a very particular work. It is written in an exceedingly poetical language, which is found perhaps nowhere in Plato nor anywhere else in Greek. Nor will it surprise you to see that it has a poetical metre which shows a logaoedic character.

Plato.

Sentence-metre.

	Phaedrus			Republic	Laws
	Chapt. XXVI 1st thousand syllables	2nd thousand syllables	Average		
—⏑—	174	167	*170·5*	146·2	112·8
—⏑⏑—	85	74	*79·5*	64·0	47·5
—3—	12	21	16·5	30·7	40·3
—4—	3	8	5·5	9·0	13·8
—5—		2	1·0	2·7	5·3
—6—				1·2	2·8
—7—				0·0	0·5
—8—				0·2	0·0
—9—					0·3

It is easily seen that the Phaedrus shows an abundance of dactylic and trochaic metra. Of this fact everyone can convince himself by reading some chapters aloud. Remarks on this phenomenon have already been made in some commentaries, especially on the finishing prayer. It is seen that the forms —⏑— and —⏑⏑— are more frequent, that on the other hand —⏑⏑⏑—, —⏑⏑⏑⏑⏑—, etc. are rather avoided. Not seldom there are sentences like this:

Πᾶσα γὰρ ἦν τὸ πάλαι πτερωτή —⏑⏑—⏑⏑—⏑—— (251[e]), etc.

We may say that there are three criteria which distinguish the Phaedrus from all the other dialogues, viz.: (1) poetical choice of words, (2) poetical metre, (3) avoidance of hiatus. We shall now investigate the influence of each of these factors on the results of the statistics. Therefore I especially draw your attention to a work of Barwick, De Platonis Phaedri temporibus, of 1913. Of course he does not yet know the peculiar metre of the Phaedrus, but he is a scholar who is not content with cleverly found probabilities nor does he get absorbed in general speculations which are pleasant to read but which do not prove anything. He gives his opinion in a few words, he gives simple and convincing statistics, he does not go too far in his conclusions. And that he has a correct insight into the problem appears from the fact that he gives an opinion somewhere which he is not quite able to defend, for which he has no explanation even, and which becomes clear only by means of metrical investigations. I mean the use of ὡς in the Phaedrus, to which I shall refer presently.

In a most convincing manner Barwick shows that the Phaedrus as to the hiatus stands quite alone. The number of hiatus in Plato's former works varies between 0·44 and 5·85 a page. In the later works this frequency varies between 31·18 and 45.87. It is rather surprising to see

that the Phaedrus has 23.90, a figure that lies exactly between the two other groups.

That the hiatus is avoided in the later dialogues appears very clearly from these figures, nor is this, as far as I know, doubted by anyone. If, however, we think that the avoidance of hiatus may be used as an argument to determine the chronological order, we should be inclined to fix the Phaedrus between both groups, i.e. before the Critias, Philebus, Politicus, Sophistes, Timaeus, Laws. In this case, however, the Phaedrus would have been written after the Parmenides and the Theaetetus, which is very unlikely. There remains only one possible hypothesis, viz. that the Phaedrus belongs to the former group, to the time when Plato did not yet avoid the hiatus: but the poetical style of this work involuntarily causes a certain avoidance of it, which, of course, is not so strong as that of the time when he pays a special attention to it.

We shall discuss other peculiarities of the Phaedrus, as the statistical treatment of its style by recent scholars offers many illustrations of wrong statistical methods.

The frequent use of *τί μὴν* is indeed, as has been remarked by the advocates of a later origin of this work, typical for the later period. But what is remarkable here? That the Phaedrus, as well here as in the treatment of

hiatus, stands quite alone. Though it is by no means the last dialogue, we get here a percentage of 68·8 on the sum total of the affirmative rhetoric questions, i. e. 24·4 % more than the figure coming next.

Frequency of *τί μήν* on the sum total of affirmative rhetoric questions.

Phaedrus	68·8 %	Sophistes	19·7
Republic	23·3	Politicus	37·7
Theaetetus	46·4	Philebus	34·7
Parmenides	11·8	Laws	37·2

Besides, the Phaedrus has a relatively very high number of *ἀλλὰ μήν, γε μήν,* and *καὶ μήν,* as may be inferred from Lutoslawski's tables, in his propaganda work for statistical investigations on Plato, *The origin and growth of Plato's logic (p. 184).*

No other hypothesis can satisfy us than that these expressions suit the poetical rhetoric of the Phaedrus: also in the tragedy the expressions are very frequent.

Also in another peculiarity the Phaedrus stands alone. In the former dialogues we often find *δῆλον ὅτι*; only in the later ones it is sometimes replaced by *δῆλον ὡς*. The same is true for the Phaedrus. Now, we know that *ὅτι* in the later works is avoided because of the hiatus arising between *ὅτι* and a following vowel e.g. in *ὅτι ὠφέλιμος ἐστίν*. The Phaedrus, however, does not avoid any hiatus after *ὅτι*, as evidently in that period Plato did not consider

the hiatus as troublesome: ὅτι is used 35 times before a vowel, but only 16 times before a consonant; whith ὡς it is quite the reverse! Therefore there must be some other reason why δῆλον ὅτι is avoided in the Phaedrus, and replaced by δῆλον ὡς.

Now, in the Phaedrus ὡς is very much more frequent than ὅτι, although this too is a peculiarity of Plato's later years. It should be noticed that also here the Phaedrus stands quite alone: the figure for ὡς compared whith that for ὅτι is again much higher than that of all the other dialogues which were written before the Sophistes. Barwick also noticed this. He rightly thinks that this is the reason why δῆλον ὡς is so frequent in the Phaedrus, and he asks: *why* is ὡς so frequent here? His answer is (p. 64[31]).

'Quod qui factum sit, utrum mero casu an alia re, alius aliter iudicabit; me quidem iudice artissime cohaeret illa res cum Phaedri peculiari sermonis habitu.'

Is this the true reason?

To understand the true reason I must draw your attention again to the metre of the Phaedrus. It seeks logaoedic metra. Now, ὡς consists of one long syllable, ὅτι of two short ones. If a writer has to choose between δῆλον ὡς and δῆλον ὅτι, he has to choose between —⏑— and —⏑⏑⏑, i.e. between a cretic and a tribrach. The tribrach, however, is avoided here. This is the true reason.

We shall put this to the test. There are many cases where a favourite form can be replaced by a bad one, and the reverse, by using ὡς instead of ὅτι. Investigating in chapter 22 and the following ones all the passages where ὡς and ὅτι are used in the same sense, I got 21 ὅτι, and 27 times ὡς. Has Plato's choice indeed been influenced by his metre? You understand that this question is of importance from a methodological point of view. Its solution may prove whether Plato's choice of words can partly be determined by metrical tendencies.

The result of my investigation is that ὡς is used 27 times, and that in the majority of cases, viz. 23, the use of ὅτι would have given a tribrach, whereas the use of ὡς gives a favourite form. On the other hand ὅτι is used 21 times, in 13 of which ὡς would have made a molossus ———— from one of the good forms —⏑— or —⏑⏑—. In the 42 cases, where Plato could choose between —⏑— and —⏑⏑— on the one side, and —⏑⏑⏑—, —⏑⏑⏑⏑—, —⏑⏑⏑⏑⏑— etc. on the other, he chose 34 times one of the former combinations. From this we are allowed to infer that the remark of Barwick about the peculiaris sermo of the Phaedrus was quite correct. The word ὅτι can be used only between two long syllables, if it is tried to get —⏑— or —⏑⏑—: hence the low frequency. But without knowing the metrical tendencies he could not explain it.

In this manner the influence of sentence-metre on the choice of words has been proved by means of statistics. Any definite metre can be attained only by two means: (1) choice of words (2) order of words.

If the first way is chosen, these synonyms such as *ὡς* and *ὅτι, ὥσπερ* and *καθάπερ* come into consideration in the first place, and it is these very synonyms that play a predominant part in statistics.

Also some other peculiarities of the Phaedrus can be explained in this way. *Καθάπερ* occurs only 4 times, whereas *ὥσπερ* 27 times; this fact seems to indicate a late origin. Now, it is an easy means to get an anapaest or a dactyl, e.g. (249e): *ὁ ἐρῶν τῶν καλῶν ἐραστὴς καλεῖται.* In the peculiar language of the Phaedrus it may also be a favourite archaism.

Τῷ ὄντι and *ἢ οὔ* are avoided because of the hiatus. So one thing fits with the other: all these facts point to the same direction: whoever writes hexameters cannot use any cretic word — I hope that I have convinced you of my opinion that to the study of Plato also belongs that of his prose-metre.

When we acknowledge now that the Phaedrus with its peculiar color poeticus stands quite alone, it is clear that in order to determine the chronology we are allowed to use only those criteria which do not depend on this

color poeticus. So the hiatus must be excluded as a criterion, as well as the avoidance of *τῷ ὄντι* and *ἢ οὔ*, which depends on it. So the clausula must be excluded as far as it depends on the peculiar poetical metre of the whole sentence. On this metre, the main features of which are the preference for —⏑— and —⏑⏑—, and the avoidance of —⏑⏑⏑—, —⏑⏑⏑⏑⏑—, etc. depends the comparatively high frequency of the clausulae: —⏑⏑— with long final syllable (Phaedr. 10·1 %, Republic 7·94 %), —⏑⏑—⏒ (Phaedr. 9·4 %, Republic 7·0 %), —⏑—⏒ (Phaedr. 16·4 %, Republic 14·0 %) on the one hand, and on the other the low frequency of —⏑⏑⏑⏒ (Phaedr. 0·00 %, Republic 6·20 %). The peculiar substitution of *δῆλον ὡς* for *δῆλον ὅτι* in some passages will be sufficiently clear now. Without any doubt the ionic dativi, the superlativi, archaisms such as *καθάπερ* and *μήν* belong to the peculiar character of the style.

Summa summarum, some 31 criteria are known to us which we use as an argument for or against the grouping of the Phaedrus among the later works. It is thought (see Barwick p. 00 and 00) that the Phaedrus in this case comes near to the Theaetetus and the Republic. Of even these 31 criteria only 4 are missing in the Theaetetus, in the Republic only one, in the Phaedrus, however, 20! Of the remaining 11 many occur in the Phaedrus only once; these of course are quite insufficient

to prove anything, for many of them are found also in some works which undoubtedly belong to the former group. Those which finally remain, I discussed before: they depend on the logaoedic metre. This may suffice to conclude that, as far as any faith can be put in statistical evidence, the Phaedrus was presumably written before the group to which the Theaetetus and the Republic belong.

Thus different causes may have the same consequences. In the later period *δῆλον ὅτι* is avoided because of the hiatus which may arise after it. As, however, in the Phaedrus an hiatus after *ὅτι* does not appear to be felt, this factor is wanting. The avoidance of the tribrach in this work is the real cause of the avoidance of *δῆλον ὅτι*. So the method of using statistics of words and phrases to determine the chronological order of Plato's dialogues is quite wrong. It is not always sufficiently asked *why* the use of words in the different dialogues is not quite the same. On this point the time-taking work of Von Arnim, published in the Sitzungberichte of Vienna (1913), failed. He vehemently defends that the Phaedrus is posterior to the Republic. Elsewhere he says that his arguments are quite sufficient to prove it irrefutably. I shall not dwell on these questions any longer here: I think his proof (Platons Jugenddialoge und die Entstehungszeit des Phaidros, p. 161) is more ingenious than probable, more logical than psychological.

It should always be borne in mind what must be expect-

ed from the metrical tendencies in Plato's later works. The peculiar metre, as we saw above, can be arrived at only by means of (1) order of words (2) choice of words. The first way is often chosen by Plato. The frequent use of *τινὰ τρόπον*, and the much less frequent one of *τρόπον τινά*, the avoidance of the lengthening by position, and many other phenomena are striking examples of it, and would give ample material for separate treatment. To these may be added the frequency of compounds the first part of which is *μετα—*, or *δια—*, or *κατα—*, and so on, the frequency of participia such as *καταδεχόμενος*, *διαλεγόμενος*, *δεδόμενος*, the frequency of forms such as *καταμάθωσιν* and so on. Words ending in *—ος*, *—ον*, *—ᾶν* etc. are used by preference before a vowel. Some one may find time to show this fact by means of statistics. And what words are more likely to be chosen or rejected according to metrical preference than synonyms such as *ὡς* and *ὅτι* in the Phaedrus, or than *ὥσπερ* and *καθάπερ*, *μέχριπερ* and *ἕωσπερ* in the Laws? We ought even to say that, knowing the metrical peculiarities of Plato's later years but not its consequences, we should expect some preference in the use of these very synonyms. And when we have found indeed obvious tendencies in this direction, are we not entitled to regard the one as the consequence of the other?

FIFTH LECTURE.

About the ancient clausula curious theories may be read in recent literature. Every scholar has his own system of grouping, which he tries to defend by means of statistics. Hardly anywhere the question is put whether the frequency of these forms may be due to chance. Very rarely are scholars convinced that only one system can be the true one; neither are they convinced that an exact and reliable method ought to be found by means of which this true system can be found. A moment ago we spoke of Norden's peculiar system for Demosthenes, a system which appears to be universally accepted. Neither here nor in Zander any comparison is made with sentence-rhythm, nor with non-rhythmical prose in detail. Mostly these schemes are put before us, as if any doubt as to their reliability were impossible. Thus we read in Heibges (p. 7):

'Sed cum Demosthene mortuo gravitas ubertasque dicendi minuerentur, paucae illae formae clausularum magis magisque adamabantur et postea a Romanis susceptae sunt. Sunt autem hae quattuor, nemini iam philologo non notae. (sic).

1. —⏑—⏒ = Ditrochaeus = A.
2. —⏑———⏒ = Creticus auctus trochaeo = B.

3. —⏑—, —⏑⏓ = Creticus bis positus = C.
4. —⏑—⏑⏓ = Hypodochmius = D.'

As you will see, the scheme is quite arbitrary. Besides it is wrong. The forms 1, 2, and 3 are favoured by some authors, avoided by others. The last form —⏑—⏑⏓ is, as far as I know, not favoured by any Greek author; the same is true for Chariton, with whom he deals in particular. He says that Chariton uses numerous forms (p. 9): 'Attamen meras formas principales plurimum valere perspicitur.' Now, the form —⏑—⏑⏓ is one of his formae principales: and even as such it is avoided.

In reading this and other passages we ought always to remember that neither here in Heibges, nor in Heitmann's work on the clausula of Libanius there is any question about a comparison with sentence-rhythm. It is Thumb's special merit of having pointed out its importance. Seldom is the frequency of the discussed forms in other authors mentioned, sometimes, however, in such a way that no conclusion whatsoever can be drawn from it. Though it can be clearly proved that the forms —⏑—⏓ and ————⏓ do not metrically belong together, — on the contrary, —⏑—⏓ is generally favoured, the other is generally avoided, these forms are often grouped together. Though there can be no doubt as to the fact that in Chariton —⏑———⏑⏓ is favoured, but —⏑⏑———⏑⏓ avoided, it is contended that a choriamb can be substituted for a cretic.

It should always be borne in mind that the word 'system' is used in different senses. It may mean: system of interpretation, as e.g. where we are speaking of Norden's system or scheme of the clausula of Demosthenes, or it may mean system of investigation, as e.g. our system of 128 possible forms. The first is mostly a quite subjective and apodictic one. The latter is quite objective, as it has not any premise, except the premise that there may be some differences in the arrangement of long and short syllables in different authors.

As far as it is possible to reduce Heibges' figures to our system of the 128 possible combinations, it is possible to compare Chariton's metre with that of other authors. A clear insight, however, into his clausula-forms cannot be obtained before his sentence-metre has been investigated. The favoured sentence-endings may be somewhat as follows.

Positive clausala in Chariton.

		Thucydides.	Chariton.
(τῶν) λεγομένων	(—)⏑⏑⏑⏒	5·2	**11·3**
πᾶσιν ἐναργέσιν	—⏑⏑—⏑⏒	2·1	**5·9**
ἐκλέγουσιν	—⏑—⏒	14·2	**21·3**
πᾶσιν ἀνθρώποις	—⏑—⏑⏒	9·2	**17·6**
συμπᾶσιν ἐξέρχεται	—⏑—⏑⏑⏒	2·6	**7·2**

Heibges ignores the form ⏑⏑⏑—, the most typical of all Greek clausulae. He regards the form —⏑⏑—⏑⏒

as a by-form of —⏑—⏑— without any ground. The negative forms are nearly these.

Negative clausula in Chariton.

		Thucydides.	Chariton.
τοὺς ἀνθρώπους	————	18·3	**3·1**
θεῶν ἔργα καλεῖται	—⏑⏑—⏒	7·9	**2·0**

Statistical evidence seems to prove that Chariton shows the strongest metrical tendencies of all the authors as yet investigated by us. Therefore the investigation of the frequency of the different forms in the sentence remains a question of urgent necessity.

The same work as that for Chariton by Heibges, has been done for Libanius by Heitmann. The same formae principales have been distinguished here:

Positive (?) Clausula of Libanius.

	Thucydides.	Libanius.
—⏑—⏒	14·2	16·1
—⏑——⏒	9·4	7·6
—⏑——⏑⏒	2·6	5·8
—⏑—⏑—	3·7	5·5

By comparing in this way the frequency of these 'principal' forms in Libanius with that in Thucydides, the preference for these forms in the former appears to be quite hypothetical. We are even justified in supposing that the form —⏑—⏒ was indifferent to Libanius, whereas —⏑——⏒ was avoided. Of course Heitmann

combines —⏑—⏓ with ————⏓. So he is induced to give a comparison of frequency-figures for different authors, which comparison is given in such a form that it has not the least sense. It is rightly doubted by Maas whether any metrical tendency exists here at all. Nearly the only form which points to it is ————, which shows a very low figure.

Negative (?) clausula of Libanius.

	Thucydides.	Libanius.
—⏑⏑—⏓	7·9	7·7
———⏓	20·4	11·6

Here as well as in Chariton only a minute statistical investigation of his sentence-metre can give convincing evidence. In any case the typical Greek form:

	Thucydides.	Libanius.
—⏑⏑⏑⏓	5·2	2·8

is not favoured.

Some years ago I pointed out that there exists a certain agreement between the metre of Thucydides and that of Herodes and Lesbonax.

	Clausula of		
	Lesbonax (236 cases)	Herodes (297 cases)	Thucydides (2000 cases)
--⏑—⏓	11·4	16·1	14·2
—⏑——⏓	10·6	8·4	9·3
———⏓	20·8	17·5	18·3
—⏑——⏑⏓	3·0	2·0	2·6

Besides these figures correspond strikingly with those of Thucydides' sentence-metre and with those of our theoretical calculations.

	Lesb.	Her.	Thuc. claus.	Thuc. sent.-m.	Theoret. calc.
—⏑—⏒	11·4	16·1	14·2	14·4	14·2
———⏒	20·8	17·5	18·3	20·4	18·3

This fact constitutes an important argument in favour of the hypothesis that in Thucydides there exist only slight, if any, metrical tendencies. On account of my researches on this point Münscher says (Bursian Bd. 70, 1915):

'Bestätigt sich die Ähnlichkeit von Thukydides einer — und Lesbonax-Herodes andererseits, so wäre das ein wichtiger Beweis für den auch in Rhythmus bewussten Anschluss dieser Archaisten an die altattische Literatur'.

The question should, however, be put, whether in the absence of metrical tendencies we are allowed to speak of a conscious imitation. Indeed, where a preference exists for exactly the same forms in different authors, we are naturally justified in supposing that there is a connection between the two facts. Where, however, these preferences do not exist, a conscious imitation as is meant by Münscher, becomes quite hypothetical.

Before we continue, I will discuss with you another methodological question — probably we can solve it.

In Greek prose we have investigated in different

authors whether there was a preference for arbitrary combinations of long and short syllables. In doing so we have not postulated that the cretic or the double trochee should be the basis of all prose-metre. We have not even postulated that in prose-metre there is such a thing we are used to call metrical feet. We have only and exclusively asked this question: what combinations of short and long syllables are used by the authors in question, how often are they used, and finally: what has caused this usage? These causes, we have seen, were twofold.

Firstly the factor which might be called the dependence on the material which the author makes use of, i.e. the words of the language. Where only this factor of dependence is at work, chance plays a very important part. Where, by the side of this factor, other factors are at work as well, we have tried to determine and to analyse them as accurately as possible. We found that in different Greek authors there was indeed a preference for particular series. With the help of some simple mathematical formulae we have succeeded in determining how great the chance is that the ratios found inductively are a consequence of the dependence on the material only.

That gave us a twofold advantage.

Firstly the probability that our results should not be correct, was reduced to a minimum.

A second important result was this: that we have now a means to determine how great the chance is that in different texts different metrical tendencies are at work. This may be of importance as a criterion of authenticity. Of course an agreement between the metre of two texts may be due to imitation. A striking agreement, however, such as between the Anecdota of Procopius and his other works cannot possibly be ascribed to this factor. On the other hand: if we should have determined that the chance is one million times greater that in the Consolatio ad Apollonium quite different metrical tendencies are at work than in all works which can be ascribed to Plutarch with any certainty, it has not yet been proved that this work should not be of Plutarch. But when it is considered that these metrical tendencies, looked upon from a psychological standpoint, belong for the greater part to the domain of the secondary function, the importance of metre as a criterion of authenticity will be readily understood.

I point out emphatically that in our investigation of Greek prose-metre we have not postulated anything. We have put a question, and we have answered it as follows: there exists a preference for special metrical forms. An other question is: is there within these metrical forms a preference for a special divison of words, for a special typology?

An investigation made by me, has given only negative results, or rather positive in that sense that there is every reason to assume that the Greek clausula has probably not had a preference for a special typology. *) That in Demosthenes the avoidance of long series of short syllables was more difficult where a single long word consists of short ones *(ἐκ τοῦ παρεληλυθότος χρόνου)* is clear in itself; this symptom may perhaps been classed under the idea of typology. But the most important result of this investigation into the clausula-typology is this: that at any rate in most Greek authors metre (I do not say metrical feet, or verse-feet) is primary, typology, on the other hand, if existing at all, at any rate secondary. By means of this investigation the method of Novotny, however objective and interesting it may be, is condemned for Greek prose. His assertion that quite wrongly metrical feet and especially the cretic have been postulated as primary, is quite correct. His assertion that in Latin and Greek the words are metrical units, is on the other hand just as apodictic and wrong as the assertion of his adversaries. And where we can show that in Greek prose typology remains in the back-ground, it is necessary to investigate metre first of all, and typology last of all. In a disguised form we have here again the old method of investigation of Bor-

*) See table.

necque, and I hope that Novotny will not diminish the value of his results by applying an objectionable method of research.

There are, indeed, some differences in word-division, though it should be borne in mind that the material used here is very small. The general correspondence, however, between the figures, as e.g. for —⏑—⏒ in Thucydides and in Plutarch, clearly proves, that it is not the preference for one type of —⏑—⏒, not e.g. the preference only for *αὐτοῦ λέγουσιν* —, ⏑—⏒, or for *ἐκλέγουσιν*, —⏑—⏒, which caused the great difference between the figure 14·2 % for the group —⏑—⏒ as a whole in Thucydides, and 29·1 % for the same group —⏑—⏒ as a whole in Plutarch. All 'types' contributed to it in nearly the same, perhaps quite the same degree. In Plutarch, at all events, the group —⏑—⏒ is felt as a metrical unity. The metre is primary, the typology, if existing in Greek prose at all, is secondary. It may be that the avoidance of a final monosyllable should be classed under the idea of 'typology'. It may be that in some other Greek authors there exists a preference for certain types. Perhaps even our figures, although derived from a very small material (not yet 200 cases), and therefore exhibiting large probable errors, perhaps even these figures point to such differences. In general, however, the ratios agree so strikingly, showing a culminating point for —, ⏑—⏒, and a gradual decline

from this culminating point on both sides, that metrical tendencies cannot but be regarded as the basis of prose-rhythm here.

Besides — how then does Novotny consider this question? He thinks that the end-rhythm of the period is formed by the artist by means of changing the word-order, especially the order of the last word of the phrase and the word next to the last. This is only partly correct. Suppose, however, that he is right, why then is this order of words changed? Only to get a certain order of long and short syllables, as an accent-clausula cannot exist here. But what else is this than *metre*? Besides: we have seen what the length of the clausula really is: in Plutarch it is —⏑—⏓, that means: the author tries to get —⏑—⏓: whatever precedes, is indifferent to him.

The word-order is, however, only one of the means to get a certain clausula: we may add to it: choice of words. For *vincla resolvunt* we cannot substitute *resolvunt vincla*, for this is a bad clausula. But we can write *vincla solvunt*, and if this is done, it is done to avoid the *metrical* forms —⏑⏑—⏓ and ————⏓, and to get the *metre* —⏑—⏓.

That the clausula should be compared with the rest of the period, has already been suggested by Thumb. The really new element in Novotny's 'Neue Methode der Klauselforschung' has no value, as he tears asunder groups

which metrically belong together, and as he does not try to determine the length of the clausula. Does not his opinion remind us of the words of the French scholar who said: 'On dit qu'un texte est écrit en prose métrique lorsque la forme du dernier mot de chaque phrase détermine la forme métrique des mots qui précèdent le mot final'?

As I tried to explain, our investigations were an attempt to ascertain, whether in ancient authors there is indeed a preference for certain combinations of long and short syllables. That such a preference really exists, is generally recognised nowadays. Not all scholars, however, agree to assume it as a basis of prose-rhythm. Some think that a metrical form has only then rhythmical meaning, if it is repeated. So, according to them, —⏑——⏒ is only then a metrical clausula, if it is repeated. Zander, in his famous Eurhythmia (I, p. 207) says:

'Nam quantum quoque loco a postrema parte membri aut geminatur continenter, aut alteri clausulae redditur congruenter, tantum habendum est clausulae: sed ut sit rhythmus aliquis, utique necesse est sit aliqua terminatio'.

If these assertions are true, we cannot see why there should be a preference for certain metrical forms. Besides, *reiteration* of certain metrical forms must occur more

frequently than we should expect, i.e. more frequently than non-rhythmical prose. This has not in any respect been proved by Zander. He only gives an analysis of texts which he regards as metrical, and marks the reiteration of forms. This analysis is full of mistakes. Firstly, he assumes in a most arbitrary way that two short syllables can be substituted for one long one. Secondly, he assumes that —⏑—⏑ is to be regarded as identical with ———. Each of these assumptions ought to be separately proved. Of course in every text a frequent repetition of some forms can be stated. This repetition will be most striking in those authors who make a more frequent use of certain forms. These preferred forms, such as e.g. —⏑—⏓ in Demosthenes are, of course, often repeated. Zander ought to have proved that these repetitions occur more frequently than we should expect.

'Rhythm is the repetition of metrical forms'. But where is the repetition of the form —⏑——⏑ in Plutarch, which form is so common there? Are we to scan ——⏑|——⏑? We can, however, prove that ⏑—⏑——⏓ is nearly as much favoured as ——⏑——⏓. Is there no connection between the preference itself for —⏑——⏓ and 'rhythm'?

It is only an hypothesis. But a dangerous one.

For what is its basis? It is based upon the assertions of the ancients themselves about it, assertions which are

supposed to teach us that rhythm is identical with repetition. Leaving alone whether the passages which seem to support Zander's view have been correctly interpreted by him — this argumentation is methodologically incorrect. The texts of the ancients discussing these questions are mostly vague, contradictory, wrong. You need only remember what a bad insight they give into the tendencies which have been brought to light by statistical investigations. Anyone who, as Blass, Bornecque, Novotny, and others, in investigating ancient prose-rhythm bases himself on a doubtful hypothesis, or on ancient texts, can never arrive at conclusive results: he has built upon sand.

I am sure now that you understand me quite well. I have never contended, nor shall I ever contend that the quintessence of ancient prose-rhythm lies only and exclusively in metre. There is a rhythm of thoughts, and a rhythm in the agreement between thought and language. This rhythm consists in a harmony which is generally only recognisable by means of intuition, and which cannot be grasped by statistics. I think, this is the deepest essence of prose-rhythm.

'There is a rhythm of thought distinguishable, if not separable, from the rhythm of language, controlling and supplementing the purely phonetic rhythm. In poetry, phonetic rhythm often overrides thought rhythm. In prose,

phonetic rhythm is, as a whole, subordinate to thought rhythm'.

These words I quote from Lipsky's most interesting work: 'Rhythm as a distinguishing characteristic of prose style' (p. 3 and 4). If this assertion is not objected to, we also know that there can really exist a prose-metre which is not solely based upon the reiteration of the same metres. Further, if this is recognised, we understand that a peculiar harmony may be reached by using certain forms at the end of the kola, without repeating the same form. An interpunction does not lose its importance for the rhythm of the phrase, if it is not repeated. And in the same way the use of a favourite clausula suggests the idea of the end of a period, or of a kolon. It marks the end of a thought, and in this way it unites thought and form. This is the quintesssence of the clausula.

SIXTH LECTURE.

To write the history of antique prose-rhythm, its origin, its evolution, its decline, is an extremely difficult task. Hardly any special point has yet been treated exhaustively or even satisfactorily, and most pioneer-work has yet to be done. And yet the more we work ourselves into this field of investigation, the more sceptic we become as to our own conclusions. Let us first give a short survey of the history of the method of research.

Immediately after the discovery of rhythmical cadences in antique prose, eminent scholars, such as Krumbacher, felt the necessity of putting the statements to the test. This meant that they tried to convince those who felt somewhat sceptical as to the existence of such cadences by showing that there existed a great difference between different authors in their treatment of the close of the sentence. The first most praiseworthy step was taken for the Greek accentual clausula. It was investigated in great outlines (1) how many 'good' and (2) how many 'bad' clausulae occurred in different authors, and then the results were compared. These results were quite convincing, and in this connection Litzica deserves to be particularly mentioned.

The importance of these investigations was entirely

misunderstood by W. Meyer himself; it seems that this eminent scholar was not quite able to work out his own discovery in detail.

The second important step for the Greek accentual clausula was taken much later. Instead of regarding the 'good' clausulae as one unity, Dewing investigates separately the frequency of the different possible forms: ⏑́ ⏑́, ⏑́ ⏑ ⏑́, ⏑́ ⏑ ⏑ ⏑́, etc. In this way it is possible to compare the frequency of the same forms in non-rhythmical texts. I am sorry that these valuable researches were not extended to typology, and that Dewing did not try to determine the degree of preference which exists for the different forms. Consequently he regards some forms as favoured which are not favoured at all, and other forms as avoided which are not avoided at all.

Very little use has been made of these excellent examples for the investigation of the Greek quantitative clausula, and for the Latin clausula. Norden, Zielinski, Zander, Bornecque, went on constructing their a-priori schemes, seemingly based upon inductive material, but in reality working with the most objectionable deduction. Only a few excellent exceptions can be mentioned. These are the remarks of Jordan, Maas, Thumb, Novotny. Thumb, following the researches of Marbe for modern prose-rhythm, most acutely remarks that he is not yet convinced by the results of the clausula-investigations

before the rhythm of the whole sentence has been carefully studied. It can hardly be understood why critics did not see the fundamental importance of these remarks. As far as I know, only Novotny appreciates their value sufficiently, though his a-priori opinions about typology, and his somewhat vague conception of prose-rhythm in general have prevented him from making the right use of them.

In modern literature on the Latin clausula we may note a controversy which has drawn the general attention of scholars. This is the controversy between Bornecque and Zielinski. The importance of this controversy has been greatly overestimated. If scholars had been convinced from the beginning that metrical texts ought to be compared with non-metrical texts, and that only in this way reliable results can be obtained, this polemic would never have arisen. The simple facts would have been collected without prejudice, tendencies would have been stated and on the ground of such data, the facts could have been explained.

Here and there interesting comparisons with non-rhythmical prose may be noted. The most interesting are those of Jordan, who extended his comparison even to typology. We highly regret that he did not accomplish the whole work according to this method.

Finally, it should never been forgotten that the reviews

of so eminent critics as Kroll and Laurand cannot but have exercised a greet influence on recent reseaches.

In modern investigations where students are in a position to study antique statements and to collect material themselves, we notice that this collecting of material has often been neglected. Thus some seem to believe that the correctness of the theory of Zander depends upon the correct interpretation of some antique statements about the essence of prose-rhythm, instead of depending upon the results of methodologically correct statistical researches. On the quantity of the final syllable in the clausula there is a polemic which, curious enough, ignores Josephy's valuable statistics altogether. Leo *) explains the avoidance of long final words in the hexameter, an avoidance occurring already in Cicero, by means of antique rhetoric theory (which is found in Quintilian) about the prosaic clausula, without trying to control this theory by means of statictics. Comparative researches will show you later on that these long final words are not avoided in the clausula by Cicero himself. Statistical researches are often regarded as something inferior, at any rate negligible.

In reality there are only two ways to inquire into antique prose-rhythm. The one is to accept antique theory about it. The other is to collect statistic material.

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*) De Statii Silvis.

The value of antique passages bearing on the clausula is of course very relative. Metrical tendencies are partly unconscious, partly conscious. As far as they are unconscious, or rather subconscious, i.e. belonging to the secondary function of the mind, the statements bearing on them are unreliable. As far as they are conscious, it is doubtful whether the artist was able to formulate them himself. The facts show us that this has only exceptionally been the case. Especially the more subtile problems, such as the question of the quantity of the last syllable, typology, length of the clausula have hardly been formulated by them. What has been said by Quintilian on the avoidance of long final words in the clausula does not agree with the facts. I think, we may illustrate a correcter insight into the value of the antique statements by changing the title of the work of Wuest: 'De clausula rhetorica quae praecepit Cicero quatenus in orationibus secutus sit' into 'Quomodo clausulam rhetoricam construxit Cicero, quatenus ipse concipere potuerit'. Aesthetic criteria of prose-metre belong to the secondary function.

Everywhere, however, there is a huge mass of material which can be investigated. Why not first investigate, and then correct the ancients with the help of the results thus obtained?

In some respects antique theory may become of importance. This importance may be illustrated as follows.

According to our imperfect sense for metre, which is hardly anything more than substituting accentual rhythm for quantitative metre, we are inclined to regard the form

—⏑—⏑—⏑—

as a more pure and original form than

⏑⏑⏑—⏑—⏑—.

Likewise in this respect we prefer

—⏑—⏑—⏑—⏑—⏑—

to

⏑⏑⏑—⏑—⏑—⏑—⏑—.

The study, however, of Greek verse-technique, more especially the researches of Wilamowitz, have proved that in the Greek tragic trimeter 'resolution' is not a symptom of decline or even of evolution, but that it belongs to the original form of the verse. Now, this fact may be mentioned here as analogous to a phenomenon in Greek and Latin prose-metre. In the clausulae 'resolutions' are nearly always favoured more strongly than the 'principal' forms. In Philo, e.g., —⏑⏑⏑—⏒ has a quotient 1·9(+), whereas that of the form —⏑——⏒ reaches only 1·6(+). This fact does not prove anything of course. We may now, however, hesitate regarding —⏑——⏒ as a real 'principal' form of —⏑⏑⏑—⏒. I think, in this respect, the investigations of Zielinski and others have

given a wrong bend to modern thought. There is no argument whatsoever, as far as I see, to consider —⏑—⏑— as the original form of a clausula which might also assume the form —⏑⏑⏑—⏑. On the contrary, classical evidence may be cited in favour of the opposite view. Let it suffice to quote in this connection Laurand (Études p. 187):

'Cependant un examen plus attentif mène, je crois, à une conclusion différente: Cicéron dit que le péon est égal au crétique, c'ést à dire que le péon et le crétique ont tous deux cinq temps, mais il ne dit jamais que le péon est mis à la place du crétique et pour le remplacer. Bien plus, cette idée de la dissolution lui est totalement étrangère, ainsi qu'à tous les autres théoriciens anciens de la clausule; ils indiquent un certain nombre de pieds ou de combinaisons métriques que l'orateur peut employer, mais jamais ils ne disent que l'un tienne la place de l'autre, comme le tribraque tient la place de l'iambe dans un trimètre'.

Of course this holds good even more for the so-called substitution, which is very often regarded as something quite common (Norden).

'A plus forte raison la substitution leur est inconnue: ils ne disent jamais que la syllabe brève puisse être remplacée par une longue. Cette substitution est même contraire au principe sur lequel est fondée toute la théorie

de Cicéron: la différence des durées. Cicéron trouve un caractère différent aux clausules suivant qu'elles sont formées de spondées ou qu'elle contiennent des syllabes brèves: une série de longues donne, d'après lui, plus de lenteur et de gravité à la phrase; aussi, dans sa pensée, la clausule dispondaïque (— — — — ⏑) est tout à fait différente du dichorée (— ⏑ — ⏑) loin d'en être l'équivalent. Ces deux finales ne devraient jamais être confondues dans les statistiques'.

I can formulate my opinion about the value of ancient theory by repeating what Leo has said of the Alexandrine authors on the theory of verse-metre (Neue Jahrb. IX, 1902. p. 161):

'... dass man nicht von ihren Doktrinen ausgehend observieren, sondern an der observation ihre Theorieen messen soll'.

A few words ought to be said about the second method of investigating ancient prose-rhythm, i. e. the method of using carefully collected statistical material.

Some modern clausula-investigators seem to be of opinion that figures should be excluded from their papers as much as possible. Firstly, the collecting of statistics is a dry and somewhat inferior work. Secondly a vast collection of statistics obscures the right sense for the literary and aesthetic problems. Whoever 'calculates' performs a useful work, whoever reads aloud and criticises

aesthetically does a more superior work. Aesthetic speculations on general rhythmical problems are generally more appreciated than the careful investigation of the facts.

I think, the first of these objections to statistical researches is based upon a serious misunderstanding of the true nature of clausula-research. The science of prose-metre is or ought to be an exact science. It really belongs to psychology. It requires psychological methods and the exactness of psychological researches. Whoever despises experimental work should not occupy himself with psychological sciences, nor investigate the rhythm of ancient prose.

As to the second objection we would say that, if figures really obscure the problems which they are meant to illustrate, this does not in any way exclude the necessity of using them. On the contrary, if they really obscure these problems, this is due either to the writer who uses them were they need not necessarily be used, or to the reader who has not yet learnt to read statistics.

There seems to be a vague notion that we ought to use some figures (not too many) to illustrate our opinions. Many scholars make a kind of apology for using these percentages. I think it better to irritate an uninterested reader by using them than to offer interesting assertions which will prove to be wrong because statistics have been ignored.

The neglect of statistics and the neglect of comparative methods of research has caused the inexact formulating of the first discoveries by the authors (Bouvy, Meyer, Blass) themselves. Further it has caused the frequent doubt as to their correctness, so that many students could not accept their conclusions. It has caused the common identification of frequency and favouriteness. Then it has produced a large number of discussions and controversies about problems which could have easily been settled by means of statistics exclusively. Finally it has caused the writing of dissertations such as the one on the metre of Libanius, where there is perhaps no metre at all.

In discussing the origin of the clausula, the difference between prose-rhythm and prose-metre clearly appears. We must sharply distinguish between the origin of Greek prose-rhythm and that of Greek prose-metre. The question regarding the origin of Greek prose-rhythm is identical with that regarding the origin of Greek prose. An entirely different problem is that of the origin of Greek prose-metre, i.e. the introduction of metre into Greek prose.

The mania of the Greeks to ascribe the invention of everything to a definite person has stamped Thrasymachus as the inventor of Greek prose-metre. Perhaps Thrasymachus was really the first to use metre in his

prose. The few fragments which have come down to us entitle us at all events to say that he tried to produce rhythmical effects by means of effective metres. Aristotle as the main authority on this point confirms this. All passages relating to Thrasymachus agree on this point. Besides, the fourth paeon, the most typical Greek clausula, is mentioned as the characteristic form of his sentence-endings. That his speeches in the first book of the Republic of Plato are not metrically written proves just as little as the rhythmical speeches in Ammianus Marcellinus can prove that they should have been rhythmical. If these speeches of Thrasymachus should have occurred in Virgil, they would consist of hexameters. If they should have occurred in Plato's later works, e.g. in the Laws, they would no doubt have taken the form of Plato's later metre. On such points an agreement between form and matter cannot be maintained. Thrasymachus tries to produce a correspondence between rhythmical unit and thought unit, a phenomenon obvious everywhere in Greek verse, more especially he lets the end of both coincide. Besides, and this is really more important, he has tried to support rhythm by means of metre. The combination of both tendencies has created the clausula.

As soon as metre had been introduced into prose, the evolution was able to take different forms. Firstly one could make use of metre to imitate verses, as De-

mosthenes imitates the hexameter, and Plato (in his Phaedrus) logaoedic metra. Further one could try to avoid monotony and create a melodious and fluent rhythm. Thus Demosthenes avoids ⏑⏑⏑, ⏑⏑⏑⏑, etc. Plutarch avoids ———, ———, etc., on the other hand he favours the fluent iambic-trochaic metres. Again one could try to mark the close of a period or of a colon by using a conspicuous metrical clausula. The origin of this last tendency coincides with the origin of the carefully and, so to say, architectonically constructed sentence. I cannot see why the clausula should be more intimately connected with the commatic style than with the periodic: Isocrates' clearly shows favourite forms. *)

From its very beginning this last tendency strongly avoids the use of those clausulae which are common in Greek verse (—⏑⏑—⏒ and ⏑—⏑⏒), and favours many forms which in verse are found hardly anywhere.

These three tendencies have developed in entirely different manners. Nor is it always possible to distinguish sharply between them.

In the evolution of the Greek clausula we can distinguish three stages. The first we shall call the classical stage. The second we shall call the Hellenistic stage. In the third stage metre has disappeared: we shall call it the rhythmical stage.

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*) See Wilamowitz, Asianismus und Atticismus, p. 32 sqq.

In the first stage the individuality of the author is prominent. There is hardly any agreement between the metre of Thrasymachus, of Thucydides, of Plato, of Isocrates, of Demosthenes. Typical for it is the devolopment of Plato's metre. In his first works there is no metre whatsoever, but later on metrical tendencies arise, and become gradually stronger.

In this connection we must just point to a widespread misunderstanding. It is generally believed that prose-metre in its first stage shows an impoverishment of forms. Thus Laurand says (Études p. 189):

'En effet, l'histoire ne semble pas indiquer que les clausules diverses doivent leur origine à quelques types primitifs. Tout au contraire, autant que nous pouvons en juger, les formes ont été d'abord multiples et se sont renstreintes progressivement. Les Grecs du temps de Cicéron en employaient de moins variées que Démosthène, à Rome on constate de Cicéron à Symmaque une série d'appauvrissements successifs'.

This opinion is due to the fact that Cicero has always been the central point of modern clausula-research, and indeed from Cicero downwards a gradual 'impoverishment' is noticeable. It has given birth to many misunderstandings. The word e.g. is used in different senses. It serves either to express a decrease in the number of forms used

(indeed, the number of forms used by Sophronius is very small), or it serves to express a decrease in the number of favourite forms, thus e.g. in Plato and Philo many more favourite forms are found than in Plutarch.

Whatever may be the meaning of the word, the assertion is wrong. The question is somewhat as follows. The former use of the word is altogether irrational. How many forms are used by an author does not concern us. In nearly all metrical authors nearly all forms will be found. Only in the later rhytmical writers the number of forms used becomes more limited. In Procopius of Caesarea, however, among his exceptions (8·8 %), all possibilities are to be found. Therefore, in his prose all possible forms occur, though the number of favourite forms is very limited. The only thing that interests us is the question which forms have been preferred to others. Now, if the number of these preferred forms were really decreasing in the course of centuries, we might speak of an impoverishment. This is, however, only partly true. It is not true, for instance, that the Greek in the time of Demosthenes used more favourite forms than in the time of Cicero. Demosthenes has only one favourite form (—⏑—⏒), Philo, however, many. If we should be inclined to use the word impoverishment in the former sense, we should be obliged to acknowledge that Demosthenes, owing to his avoidance of series of short syllables, uses

in fact far fewer forms than Philo. Philo, on the other hand, shows more favourite forms than Hegesias of Magnesia. Cicero is more liberal in the use of forms than Hegesias. Only for Latin the rule holds good. But why? Because in Latin there is, with the exception of Livy and Sallust, only one single line, not of evolution, but of decline. This line consists almost exclusively of Cicero and his imitators. Here, indeed, we can speak of a real impoverishment.

To understand fully the position of the writers of Greek prose-metre, it will be necessary to keep in mind the conditions which at that time surrounded them, and which were entirely different from those of our age. The intellectual life of that period was not influenced to such an extent by reading as it is nowadays. There were no printed articles then, from which it follows that the large quantity of newspapers, periodicals, pamphlets and more important works, which we now read as a matter of course, were lacking then. The desire for knowledge at the time of the sophists could only be satisfied by the spoken word. Hence their interest in puns, hence the important place the dramas and the speeches occupy in ancient literature. Hence the delicate sense (quite incomprehensible for us) for the quantity of the syllables. Hence the important position of the rhetoricians. Hence the very important place which rhythm and metre occupy in their literature. Hero-

dotus and others read their works to the audience in Athens and in Olympia. Their literature is hardly intended to be read, but it is certainly intended to be heard.

The rhythm which pervades the whole sentence is one of the most effective means to express one's thoughts and to bring to the fore the most important parts of the argumentation. This rhythm is of course only partly dependent upon accent or quantity of syllables: without any metre or any special arrangement of accents a beautiful rhythm can be attained by other means, such as repetitions, contrasts, climaxes, periodic construction. Without any metre the arrangement of accents in a more or less conscious and a more or less schematic way may give the impression of a beautiful rhythmical sentence. Sentence-metre is only one of the means to produce the rhythm of the period.

One of the most simple features of sentence-metre is the tendency to bring variation in the arrangement of the syllables. This intention expresses itself by means of a negative tendency, viz. a tendency to avoid long series of long, and long series of short syllables.

This tendency will be most striking in the orators; it appears indeed in the speeches of Demosthenes. Not only the forms ⏑⏑⏑, ⏑⏑⏑⏑, etc. are avoided by him, but also ——————, ————————, etc. In Philo and Plutarch, however, this tendency extends only to series of long syllables.

But sentence-rhythm is heard particularly at the end of the sentence, or at the end of a part of a sentence.

The form ⏑⏑⏑— is the typical Greek clausula. It is especially mentioned by Aristotle. Of course it is avoided by Demosthenes as representing a combination of short syllables (2·6 %): for the same reason its frequency culminates in the Laws (18·0 %). In Plato's metrical development it appears rather late as a separate part of the sentence: in the Republic, where —⏑—⏑, ————, and —⏑———⏑ are already avoided, it is not yet favoured. In the metre of Isocrates it does not play any part, because it has a short penult, which fact seems to have been to him a criterion of good and bad clausulae. It is curious to note that in Philo it is favoured only when preceded by a long syllable: *τῶν γενομένων* forms a favourite cadence, *τὰ γενόμενα* is avoided. In Plato a distinct preference for a long final syllable in this form may be noted — *γενομένων* is preferred to *γενόμενα* — a preference which is strictly in accordance with the passage of Aristotle cited above.

Next to this form the most important part is played by the double trochee: —⏑—⏒. A noticeable preference for it exists in nearly all authors, except in Thucydides and Libanius. The existence, however, of any metrical tendency in these authors is highly doubtful, which has been sufficiently emphasised by Maas; Münscher remarks that Maas in his review of the work of Heitmann does

not allege anything serious against it except, that no comparison has been made with non-metrical prose!

One of the most remarkable facts in the history of Greek prose-metre is the avoidance of the form —⏑—⏓ by Plato. The normal frequency of the form is about 14·2 %; in the period of the Republic it occurs still 13·9 %; in the preceding dialogues it is just a little more frequent, in the following rather less frequent (see above p. 60), in the Laws about 5·7 %. Even in Isocrates it is rather frequent, because it has a long penult. Plato obviously prefers —⏑—⏑ to —⏑——, which is a priori intelligible: therefore what Shipley accepts as an established fact for Latin prose (Treatment etc. p. 145), cannot be said for Greek prose:

'Cicero Quintilian and all modern writers on the subject recognize that the last syllable in the rhythmical member is treated as long'.

As to the preceding syllables it may be remarked that their quantity is mostly indifferent. Here and there a preference seems to exist for ——⏑—⏓ over against ⏑—⏑—⏓, but a preference for a preceding cretic: —⏑———⏑—⏓ can hardly be stated anywhere: if it exists at all, this preference is at any rate not very strong. It may be superfluous to emphasize again the fact that the length of the clausula cannot be determined by citing antique statements or by giving more or less

probable hypotheses, but only by applying a mere inductive method of comparison.

Of almost equal importance is the form —⏑——⏑̲. It is nearly everywhere more frequent as a clausula than in the sentence. Only in Demosthenes it is not favoured, and in Plato, who takes a rather isolated standpoint also here, it is avoided already in the Republic, more strongly in the later works. It is, however, very frequent in Philo and Chariton, two authors who show a curious metrical agreement on many points.

On the other hand, the form —⏑——⏑⏑̲, which is very common in Latin prose, is found only in Plato's later works, in the fragments of Hegesias of Magnesia, and in later authors. In Plato we are able to note a preference for ⏑——⏑⏑̲, or rather for ⏑——⏑—; we do not yet know whether it is due to a preference for —⏑——⏑—, or for ⏑⏑——⏑—. The occurrence of this form —⏑——⏑⏑̲ in Hegesias appears to have greatly influenced Latin prose-metre, more especially Cicero. In the peculiar prose-metre of Livy and Sallust we look for it in vain. Plato prefers —⏑——⏑— to —⏑——⏑⏑, as well as he prefers —⏑——— to —⏑———⏑, and ———⏑— to ———⏑⏑.

A more remarkable form is —⏑⏑—⏑⏑, which is favoured by Plato and Philo as well as by Charito. It is

avoided by Hegesias of Magnesia, and this may be the reason why it is avoided in Latin prose too.

The form ———⏑̲ is avoided nearly everywhere (especially in Philo and Chariton): so it cannot be regarded as an equivalent of —⏑—⏑̲.

The form —⏑⏑—⏑̲ is avoided everywhere; only in Thucydides and Demosthenes it is rather frequent. It is strongly avoided in Philo and Charito, and even more strongly in Plato's later years. Its normal frequency is about 6·5 %, in the Republic its figure is nearly the same, in the Laws it is 1·3 %!

Why these forms ⏑⏑⏑—, —⏑—⏑, —⏑⏑—⏑⏑, —⏑——⏑, —⏑———⏑—, and no other forms are the favoured ones in Greek prose, we cannot exactly determine. I should like to suggest the following hypothesis about it.

It may be that mainly two factors have decided in favour of these forms:

(1) the avoidance of verse-metres

(2) the tendency to use such forms as produce either a sharply marked interpunction or an agreeable falling rhythm because these forms in themselves contain a repetition of metrical feet.

As to the first point, I need only remind you of the avoidance of —⏑⏑—⏑, and of ⏑—⏑—. The form ⏑⏑⏑— hardly occurs as a clausula in Greek verse. As

to the second, it is curious to note that nearly all these forms contain a repetition in themselves:

—⏑—⏓ consists of —⏑ and —⏑⏑

—⏑⏑—⏑⏑ consists of —⏑⏑ and —⏑⏑

—⏑——⏑— consists of —⏑— and —⏑—.

In —⏑——⏑ there is a preference for ——⏑——⏑ to ⏑—⏑——⏑; it may therefore consists of ——⏑ and ——⏑.

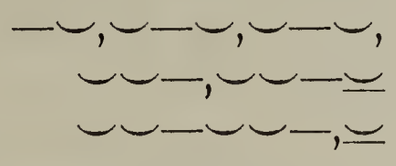
Of course these phenomena do not explain the fact exhaustively. Perhaps the problem has been incorrectly formulated: for who can give a satisfactory aswer to the question why in Greek verse these current forms are generally used, and not entirely different ones?

SEVENTH LECTURE.

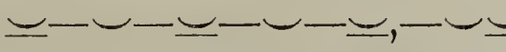
Before discussing the relation between Greek and Latin prose-metre, we shall deal with a few more special questions, viz. the typology of the clausula, the so-called 'syllaba anceps', i.e. the quantity of the final syllable, and the resolutions and by-forms.

The problem of typology has not yet been investigated for Greek prose-metre, nor is my material sufficient to draw certain inferences from.

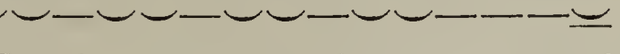
Neither can it be treated without comparing non-metrical authors, nor can it be treated separately from the typology of Greek and Latin verse. In ancient verse, typology, wherever existing, nearly always tends to preserve the rising or falling rhythm of the verse. In the Latin hexameter it avoids word-divisions like these:



In the tragic trimeter it avoids



The same effect is aimed at by avoiding:



Now, in Greek verse, typology (to use this term) is obvious in many cases where any influence of word-accent

cannot be supposed with sufficient ground. Therefore it is not necessary to assume that typology of the clausula has been influenced by the dynamic accent of the words composing it. Nevertheless some well-known facts point to it. The preference, for instance, for

$$\cdots \acute{s}\ s\ s, s\ s\ \acute{s} \cdots$$

in Procopius and his avoidance of

$$\cdots \acute{s}\ s\ s\ s, s\ \acute{s} \cdots$$

cannot be explained very well without assuming that a secondary accent causes it.

To ascribe, however, the avoidance of —⏑—, —⏑̲ in Cicero, and of —⏑—, ·—⏑⏑̲ to a mysterious fear of the diaeresis would mean substituting one problem for an other. Why it should occur in the forms —⏑——⏑̲ and —⏑——⏑⏑̲, and why it is as strongly avoided in —⏑——⏑—⏑̲, is somewhat strange. The true explanation seems to be that in the types

—⏑,——⏑ or ——⏑,——⏑

—⏑,——⏑

—⏑—,—⏑—⏑

—⏑—,—⏑,—⏑

something of the falling rhythm of the period has been preserved, which suits the end of a period. In Procopius the form

$$\acute{s}\ s, \acute{s}\ s$$

shows the same peculiarity.

So the favoured clausulae show a tendency to preserve the falling rhythm of the period, a tendency occurring in poetry as well. The artist can try to produce the same effect by using ——⏑—⏒ instead of ⏑—⏑—⏒. The avoided forms, however, if also occurring in poetry, show in Latin prose a tendency to avoid exactly those types which are common in verse. The form —,⏑⏑—⏒, for instance, which is most common in the few hexameter-endings of Cicero's prose, of Lactantius, and others, is hardly found in any sound Latin hexameter of the post-Ciceronian period. Though it cannot be denied that also in Livy this form —,⏑⏑—⏒ is the most common, it should be borne in mind that the longest words generally occur at the end of a sentence, and that verse-ending and sentence-ending only in some cases coincide. In this manner the clausula —,⏑⏑—⏒ occurs in prose most frequently.

Closely connected with the problem of typology is that the quantity of the final syllable. I have already referred to this more than once.

It has always seemed to me that in order to get a clear insight into this problem we should sharply distinguish between two quite different groups of phenomena:

(1) as to the metre, the quantity of syllable does not matter. Whether a trimeter consists of three times ⏑—⏑—, or of three times ——⏑—, it remains a tri-

meter. It is not true that the first of these two feet is either a trochee, or a spondee taking the place of a trochee. In this case we should be obliged to assume that a long syllable may be shortened in some special cases. We can understand that a final syllable is lengthened by pronunciation, but we cannot see how this long syllable can be shortened.

(2) as to the metre the quantity of a syllable does matter. The metre, e.g. in a tragic trimeter requires a long final syllable. It is really unimaginable that a short syllable could be tolerated here. If this trimeter is

⏑—⏑— ⏑—⏑— ⏑—⏑⏑,

we cannot but think that the last short syllable takes the place of a long one, i.e. that it is lengthened, so to say, positione.

It is not true, however, that it was quite indifferent to the Greeks, whether in such cases, I mean the cases of group (2), the syllable was really long or short. On the contrary, where the metre requires a long syllable, there is often a tendency to put a long final syllable (see Havet, Cours élémentaire § 144). This tendency is found in the Greek and Latin pentameter, and also in the tragic trimeters ending in a cretic word or word-combination: —⏑— is preferred to —⏑⏑.

Now, analogous cases occur in the clausula. In ⏑⏑⏑⏑ the metre requires a long final syllable. This

is made probable by the passage of Aristotle, who speaks only of ⏑⏑⏑—, it is confirmed by statistical evidence: Plato shows a preference for ⏑⏑⏑— to ⏑⏑⏑⏑. Kaluscha is quite wrong in saying that Plato generally prefers a long final syllable to a short one: this his assertion, results from his non-comparative method of research. In —⏑—⏓ he obviously prefers —⏑—⏑ to —⏑——, in other forms, such as —⏑———⏑⏓, he prefers —⏑———⏑— to —⏑———⏑⏑.

An even more difficult problem is that of the resolutions and by-forms.

We have often stated in Greek, and the same may be said of Latin prose-metre, that in the same author different forms are favoured which show some mutual resemblance. This resemblance is mainly based upon what we are accustomed to call dissolution, and substitution.

I think we have even reason to believe that these two words do not exactly render and express the real state of things. On the contrary, as we have seen before, we are not allowed to assert that two short syllables may be somewhere substituted for a long one, nor that one short syllable may replace a long one: it can only be said for instance that an author favours as a clausula either the form —⏑—, or the form —⏑⏑⏑, followed by —⏓. It is even questionable whether the word 'by-

form' is correctly used in this connection: it might wrongly suggest that the 'principal' form is more favoured, or more important. It is stated e.g. that in Philo the quotient for —⏑⏑⏑—⏓ as a clausula is 1·9 (+), whereas the quotient for —⏑——⏓ is only 1·6 (+). I think we have sufficient reason to assume that —⏑⏑⏑—⏓, ⏑⏑⏑——⏓ (quotient 1·6 (+)), and —⏑——⏓ belong together. Why, however, the form —⏑——⏓ should be the most important of these forms, I cannot see. You will note the same facts in the prose of Cicero, where some 'by-forms' are more strongly favoured than the corresponding 'principal' forms, which phenomenon, of course, does not appear from Zielinski's curious statistics. To antique evidence on this point I referred you before.

This incorrect view of 'resolutions', including the conviction that a form containing a series of three short syllables cannot be a principal form, may have caused the wrong conception of the form ⏑⏑⏑—, and the many different opinions about Aristotle's fourth paeon.*)

The question remains: how can it be seen that different forms metrically belong together?

It is more easy to state that two forms do not belong together. Nearly everywhere in Greek prose —⏑—⏓ is favoured, ———⏓ is sought. So it cannot be asserted

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*) Cf. esp. Norden, 'Kunstprosa'[2] p. 916/17.

that these forms metrically belong together, unless we should be inclined to cite in favour of this opinion the fact that both forms have been avoided by Plato!

It is more difficult to formulate, when we are allowed to assume that different forms do belong together. Analogy of verse-metre may be applied with caution to show such relations. In verse-metre it is often allowed to use in a certain foot either — or ⏑⏑. If, indeed, two clausula-forms firstly contain the same number of morae, secondly differ only in so far that where ⏑⏑ stands in the one form, — stands in the other (e.g. —⏑⏑⏑—⏒ and —⏑———⏒), and thirdly both forms are favoured to nearly the same extent, there arises some probability that these forms belong together. Other arguments may strengthen this probability. In Plato, for instance, in —⏑———⏑⏒, in —⏑————⏒, and in ————⏑⏒, the forms with long final syllable are preferred to those with a short one. Too often, however, the analogy of verse-metre is cited as a sufficient proof to support most questionable hypotheses. *)

Whoever would like to consider the problem of the relation between Greek and Latin prose-metre, should first sharply distinguish between two entirely different

*) See Heibges, and his way of grouping different forms together and neglecting the simple form ⏑⏑⏑—.

groups of Latin authors. The one group seems to begin chronologically with Cicero. The deviations of his successors from prose-metre point all to the same direction: impoverishment of favourite forms. The number of favourite forms becomes smaller; besides the number of cases of these forms becomes greater, whereas the exceptions gradually disappear: tendencies become laws. The other group of authors, however, is quite independent from Cicero. It seems to be mainly represented by Livy and Sallust. Their metre has hardly any features in common with Cicero. Whereas Cicero avoids the heroic clausula, the same form is favoured by Livy and Sallust. The same is true for ——⏑⏑⏑̲. Whereas Livy and Sallust avoid —⏑—⏑̲ and —⏑———⏑̲, these very forms are among the most favourite of Cicero's sentence-endings.

There seems to be no difficulty in finding out the origin of Cicero's clausula. Hegesias of Magnesia shows the same metre in nearly all details. It is not altogether devoid of interest to note that Cicero has imitated from all Greek authors the rhetorician who shows the smallest number of exceptions in the few fragments which have come down to us. Not less interesting is the fact that Cicero imitates all forms which are favoured in Hegesias, whereas he adds only a few to them. That he omits the form ⏑⏑⏑⏑̲ only proves that this form did not suit the Latin language.

In vain, however, would we try to determine a possible Greek origin of the clausula of the other group, that is the group of Livy and Sallust. It is true that there exist some correspondence with Plato's later works, but the differences are, however, much greater. We cannot but regard this origin as purely Latin. This purely Latin clausula may have arisen under the influence of the highly refined feeling for the quantity of syllables, after the Romans had become more familiar with Greek verse. The true origin of this Latin clausula, however, seems to be found in Latin literature itself. It seems to be an imitation (perhaps not altogether conscious) of the hexameter verse. In Demosthenes we often meet with half hexameters, and his prose shows a dactylic character. That no connection whatsoever with the national Greek verse-form should exist here, seems highly improbable. In the same way the metre of Livy has been influenced by Latin hexameters, I think more especially by Virgil. Everybody remembers the beginning of the praefatio:

'facturusne operae pretium sim . . . .'

The clausula of Livy may have been stimulated by his knowledge of Greek literature, but it really strikes us that —⏑—⏒ and —⏑———⏒ are avoided, whereas the dactylic forms —⏑⏑—⏒ and ——⏑⏑⏒ are favoured. Of course we can speak of a certain influence only, not of a conscious imitation. This influence quite corresponds

with the influence of Virgilian words and syntax on his prose. Therefore it seems probable that we have found here a purely Latin clausula.

Now, Latin prose-metre has been directly influenced by Hegesias of Magnesia or other 'Asianic' writers. In his few fragments the following forms appear as favoured ones:

most favoured: —⏑—⏓ (often preceded by a cretic), and —⏑⏑⏑—⏓;

rather favoured: —⏑——⏓ and ⏑⏑⏑⏓.

Besides we note among others: —⏑—⏑⏑⏑ and —⏑——⏑.

A curious agreement with Cicero is found in the comparatively high frequency of —⏑⏑⏑—⏓, as compared with —⏑——⏓. An other striking feature is the frequency of —⏑——⏑—⏓.

It can be seen that Hegesias paid minute attention to his metre as perhaps no other Greek writer, so that his prose reminds us of the constant monotony of the later rhythmical cadences. Cicero omits the form ⏑⏑⏑⏓ only, which proves that its absence in Latin has to be explained by the character of the language. To the forms of Hegesias he adds a few others, such as —⏑⏑—⏑—⏓. Though his number of favourite forms is really greater than that of Hegesias, their total frequency does not reach the sum total of the cases of 'good' forms in

Hegesias. It is clear from these facts that the exact modelling of Hegesias according to a few patterns points to a later period of evolution, which has lost its freshness. A development of more than one hundred years precedes. Cicero, however, through far from original, shows a freshness which only by his successors degenerates into a ridiculous imitation: later on, when sense for metre is lost, it finds a substitute in rhythmical monotony. Hegesias' metre shows the symptoms of decline, Cicero's richness precedes the gradually increasing impoverishment. Cicero's influence seems to have entirely ousted the more typical Latin clausula.

Generally speaking we may say that Greek and Latin prose-metre, though agreeing on many points, also show many differences. It may be that the Latin clausula is here and there longer than the longest Greek forms: e.g. —⏑—⏑⏑⏑—⏑̲ is in vain sought in Greek. In Latin the negative clausula may be less prominent than in Greek, where the avoidance of ————— is one of the typical features. Of course, an exception should be made for the clausula heroica, but though ————— is avoided in Latin, Cicero as well as Apulejus tolerate —⏑———————. Typology plays an important part in the clausula in Latin. Here, some of the Greek forms do not appear, more especially ⏑⏑⏑⏑̲ and —⏑⏑—⏑⏑. Nor do we find anywhere in Latin the lively metrical feeling of Plato,

whose metrical development begins only late and then gradually shows stronger tendencies. All these questions, however, have to be investigated more closely.

The Hellenistic stage seems to us to begin with Hegesias. Though there is some difference between his forms and those of the later authors, his monotony sharply distinguishes him from the classic period.

The main characteristics, however, of later Greek prose-metre appear for the first time clearly in Philo. For, beside ⏑⏑⏑⏓ and —⏑—⏓, he uses the clausulae —⏑⏑—⏑⏓, —⏑——⏓, and —⏑——⏑⏓. With him agree Charito, Flavius Josephus, Polemo, and probably Philostratus. Of these forms Plutarch favours only ⏑⏑⏑⏓, —⏑—⏓, and —⏑——⏓.

In two brilliant works Wilamowitz contended some years ago that the Atticistic reaction put an end to the Greek clausula.*) He thinks (quoting Marx) that the Asianic clausulae (Hegesias etc.) were introduced into Rome at the times of the Gracchi, and that the whole of Latin literature was uninterruptedly dominated by this Hellenistic tradition. In Greek, this should have been otherwise: by the imitation of the Attici the manner of

*) Die griech. Lit. des Alt. in 'Kultur des Gegenwart', p. 103—104; Hermes 1900, p. 37 (Asianismus u. Atticismus).

Demosthenes and Isocrates would have been restored.

I think, this assumption cannot be maintained. Philo, Plutarch and Philostratus cannot be regarded as non-metrical authors. It cannot be asserted that under the Flavii the clausula did not exist any more. Nor can it be said that —⏑—⏑, —⏑——⏑, and —⏑——⏑— are the clausulae of the later prose: ⏑⏑⏑⏑̲ is really more typical Greek, and —⏑⏑—⏑⏑ a more typical later Greek form. In fact, Wilamowitz bases himself mainly upon antique statements and upon the a priori investigations of Norden and others. But it would lead us too far to discuss in detail his assertions and the inferences drawn from them.

EIGHTH LECTURE.

I intend to discuss rhythmical prose in extenso later on. It may be of importance, however, to formulate in a few words the position of the problem. Modern scholars have not yet succeeded in explaining this origin from Greek metrical prose. On the other hand there seems to be a striking agreement between the Greek rhythmical clausula and the Latin.

If we try to establish a certain connection between the Greek metrical clausula and the rhythmical, we shall first have to answer three questions.

(1) Is it possible that there exists any relation between the long syllable in the quantitative clausula and the accented syllable in the rhythmical cadence? In Latin, the existence of this relation cannot be denied. The relation, however, between quantity and accent is, of course, much more intimate in Latin than in Greek.

(2) Which are the typical forms of the later Greek quantitative clausula, which those of the first Byzantine cadences?

(3) What is the typology of the metrical endings, what that of the Byzantine? I shall show later on that it is the typology of the Latin clausula which clearly illustrates the origin of the later prose-rhythm; therefore

I highly regret that Harmon hardly investigated the typology of Ammianus Marcellinus, an author especially important on this point. Such an investigation could only have been made by means of a comparative method.

In order to explain my hypothesis in a few words, I should like to draw your attention to the fact that at the time of the origin of the rhythmical cadence, the Greek language had lost its metrical character. The sense for metre had gone. Also the difference between ˘ and ˊ had disappeared.

The metre of ancient verse could be made perceptible to the ear only by changing it into an accentual rhythm, in the same manner in which we ourselves are accustomed to mutilate Homer. Homer, of course, was recited, as we do, in this way:

ˊ ˘ ˘ ˊ ˘ ˘ ˊ ˘ ˘ ˊ ˘ ˘ ˊ ˘ ˘ ˊ ˘,

and so on. This means that some long syllables are accentuated, whereas mainly the short ones are not accentuated. In this way modern sense for rhythm is satisfied. It is said that the syllable, thus accented, bears the 'ictus'. This treatment would, no doubt, have greatly astonished the Greeks themselves.

Now, in the schools of the rhetoricians, the metre of the ancient orators could not be neglected, when the clausula was treated. Their way of reciting the quan-

titative clausula cannot but have been like ours, i. e.: substituting rhythm for metre. Thus —⏑⏑—⏑⏑ was treated as ś s s ś s s; —⏑—⏑ as ś s ś s; —⏑———⏑ as ś s s ś s; —⏑———⏑— as ś s s ś s s.

Reading classical authors in this manner was difficult for this reason, that syllables which had what we call the ictus, would be just as well accentuated as the syllables which had really the grammatical accent. If, therefore, this clausula had to be imitated in some way or other, this could only be done by making the two kinds of accent (I mean the 'ictus' and the word-accent) coincide.

So the Greek accent-clausula has not developed from the Greek quantitative clausula, but it is an imitation of it. There is no regular line of development, neither a gradual transition from the one to the other. Wilamowitz, however, is wrong in stating that at the time of the Flavii the old clausulae are done with. Yet there may have been a time when a certain stagnancy begins, when metre and rhythm are lacking. Besides, in the accent-clausula not the slightest attention was paid to quantity in particular places, neither where in the quantity-clausula the syllables were long, nor were they had the 'ictus'. All this would have been the case, as has been said often enough, if the Greek rhythm had developed from the Greek metre.

To ascribe, as W. Meyer does (Fragmenta Burana), the origin of a phenomenon which forms so organic and

so important a part in the whole of the Greek genius in literature, to the invention of some orator or rhetorican, would be more in accordance with ancient conceptions of history than with ours.

On the other hand, the arguments for the derivation from Latin are not very convincing.[1]) First of all the argument that the use of accent in the clausula is typically Latin, is rather weak. That the Greeks used this accent in the clausula is quite natural in a time when accent-hymns arise independently from Latin. The other argument is the great agreement between the Greek and the Latin clausula. This great agreement, however, does not exist in reality.

Firstly Himerius, as far as I see the oldest accent-writer, has only a preference for the form ˊ ˘ ˘ ˊ . . ., while in Latin ˊ ˘ ˘ ˘ ˘ ˊ . . . occurs by the side of ˊ ˘ ˘ ˊ . . . . Secondly there is every reason to suppose that in Greek the form ˊ ˘ ˘ ˘ ˘ ˊ . . ., where it occurs, is a by-form of ˊ ˘ ˘ ˊ . . .[2]). Thirdly in Greek, viz. in Procopius of Caesarea, a form ˊ ˘ ˊ ˘ occurs, no prototype of which is to be found in Latin rhythm. The same holds good for ˊ ˘ ˘ ˊ ˘ ˘ in Sophronius: so in both cases the number of syllables after the last accent is a definite one. Fourthly the typology of the Greek accent-clausula has quite a definite character. As to the typology of the

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1) See Dewing, Origin, p. 00.
2) See De Groot, Prokopius, p.p. 18—20.

form ´ ˘ ˘ ˘ ˘ ´ . . ., it does not point back, as it does in Latin, to a Latin (or Greek) typology of the form —˘——˘—, or —˘——˘—˘, but to a connection with ´ ˘ ˘ ´ . . ., of which connection not a trace is to be found in Latin. In Ammianus Marcellinus the typology of the clausula corresponds clearly with that of the quantity-clausula; thus *nosse confingit* (´ ˘ , ˘ ´ ˘) has been most favoured of all types of ´ ˘ ˘ ´ . . ., which clearly points to the typology —˘,——˘ and —˘,— —˘˘. Neither of the form ´ ˘ ˘ ´ . . ., nor of —˘——˘ or —˘——˘— a special typology has up to now been found in Greek. The form ´ ˘ ´ ˘ is lacking in Latin. In Procopius it shows the typology ´ ˘ , ´ ˘. The force of this typology is to preserve the falling rhythm also in the word-division. So

´ , ˘ ´

´ ˘ , ´

and ´ , ˘ ´ ˘

are avoided, just as well as

. . . ˘—˘—˘,—˘—

is avoided in the tragic trimeter and still more rigidly of course

. . . ˘—˘——,—˘—,

and

—,˘˘—˘ *)

and —˘˘—,˘.

*) This tendency of avoiding final words of four syllables has nothing to do with the avoidance of final words of five syllables.

The clausula-typology has to be explained not by a mysterious fear for the caesura, but by a tendency to intensify the falling rhythm.

Now, all this proves that there is a greater agreement between the Greek accent-clausula and the Greek quantitative clausula than between the Greek accent-clausula and the Latin accent-clausula. In Greek the form ś s s s s ś... is a by-form of ś s s ś...: the metrical prototype of ś s s s s ś... does not occur, unless we want to consider —⏑——⏑— as such, a form which, of course, develops much more easily into ś s s ś s s. In Greek the form —⏑——⏑—⏒ does not come to the fore. Quite in agreement with this we observe that Himerius, as well as some of those that come after him, does not know ś s s s s ś.... ś s ś s is lacking in Latin, also ś s s ś s s, the prototype of which (—⏑⏑—⏑⏑) is likewise absent in Latin, and which is highly favoured in later Greek, among others in Philo, Chariton and especially Philemon. In the Greek quantitative clausula typology recedes into the background. In agreement with this the typology of the Greek accent-clausula must be explained independently from Latin and from independent and very general rhythmical tendencies.

Where the Greek accent-clausula deviates from the Latin — and that is the case in many respects — these deviations correspond with those between the Greek and

Latin quantitative clausula. So the Greek accent-clausula can in no case be derived from the Latin.

Thus it becomes clear that, owing to this very imitation, which is no development (in its more limited sense), as it is in Latin, only in later accent-writers the forms ⏑ – ⏑ – and ⏑ – – ⏑ – – crop up, forms which both have their prototype in the quantitative cadences.

After having given in this way a brief survey of the history of the Greek clausula, and of Greek prose-metre in general, as far as our present knowledge of facts enables us to see it, I shall deal in a few words with the means by which clausulae and metre can be produced, to wind up with a few remarks on the results of our investigations for textual criticism.

The existence of a certain influence of rhythm upon *word-order* cannot be denied. Firstly this influence is one of the only two means to arrive at a definite metre or rhythm. Secondly it is clearly seen from the tendency to put words especially suiting the clausula at the end of the sentence: thus in Cicero 'Antonius', in Plutarch '*γενομένων*', '*γενόμενα*', in Plato '*τινὰ τρόπον*' etc. are frequently used at the close of the period or colon. Thirdly it is known to have influenced the order

of the two last words of the sentence, e.g. in Cicero: 'videtur esse' instead of esse videtur, in Plato *τινὰ τρόπον*, but not *τρόπον τινά*, and so on.

The problems, however, concerning this influence cannot be studied very well, because of two deplorable facts. Firstly because the laws of Greek word-order are only insufficiently known to us, and secondly because the laws of Greek prose-metre and prose-rhythm are even less known to us. Therefore it may suffice to illustrate its importance by a few examples.

A few years ago Pohlenz dealt with the group of manuscripts of Plutarch *Λ* containing a Byzantine recension of some works, in which many clausulae have been altered to suit Byzantine prose-rhythm.

A clear example of this tendency is the alteration of

καὶ φθόνους καὶ κακοηθείας καὶ μικρολογίας καὶ φιλοδηνίας

into

καὶ μικρολογίας καί φιλοδηνίας καὶ κακοηθείας καὶ φθόνους.

More often one of the favourite clausulae ⏑⏑⏑—, or —⏑—⏑, or —⏑———⏑ has been changed into avoided forms. I shall give an example of each of these cases.

τῇ ὄψει παρατρέχειν becomes *παρατρέχειν τῇ ὄψει* (⏑⏑⏑— becomes the avoided form ————, ś ś ś ś ś ś becomes the favourite form ś ś ś ś ś).

σπουδαστικὸς ἀεὶ φαίνεσθαι καὶ ἄοκνος καὶ πρόθυμος becomes *σπουδαστικὸς ἀεὶ καὶ ἄοκνος καὶ πρόθυμος φαίνεσθαι*

(—⏑—⏑ becomes the avoided form ————, ś s s s ś s s becomes the favourite form ś s s ś s s).

οὐδὲν ἀπολείπει τῶν αἰσχρῶν ἀμίμητον becomes *τῶν αἰσχρῶν οὐδὲν ἀμίμητον ἀπολείπει* (—⏑———⏑ becomes the avoided form —⏑⏑⏑———, ś s ś s s becomes the favourite form ś s s s s ś s).

In Plato it may be observed that at the end of the sentence there is a preference for *τινὰ λόγον* to *λόγον τινά,* in order to get the favourite form ⏑⏑⏑—.

In Plutarch many expressions tend to be used at the close of the sentence, such as: *γενομένων* (⏑⏑⏑—), *λεγόμενα* (⏑⏑⏑⏑), *γραφομένων* (⏑⏑⏑—), *Περικλέους* (⏑⏑⏑—), *πρὸς αὐτὸν* ((—)⏑—⏑), *δεομένους* (⏑⏑⏑—), *κατέλιπε* (⏑⏑⏑⏑), *οἰκονομίαν* (⏑⏑⏑—), *μεγαλοφροσύνην* (⏑⏑⏑—), *δυνάμεως* (⏑⏑⏑—).

In Livy the same phenomenon occurs: statuit, faciunt, numerum, attulerint, contulerint, rediit, habuit, facere, are used to get at the end the favoured clausula —⏑⏑⏒.

The same is true for redierunt, adgrederentur, habuerunt, conficiebat, consequerentur, populorum, legiones, in deditionem, in order to get —⏑⏑—⏒.

Likewise Romanis bellum, convenisse, Romam venisset, disceptarent, tollendos curavit, usu belli, introductus, decernuntur, are used to get the 'good' clausula ———⏒.

In Demosthenes, of course, *δύναμιν, πόλεμος, ὁ πόρος,* etc. are preceded by a long syllable, and are followed by

a consonant, in order to produce —⏑⏑—; of course these words are often found at the end of a sentence or kolon, provided they are preceded by a long syllable, in order to produce —⏑⏑—, e.g.: ... *οὐκ ἐπὶ τὸν πόλεμον.*

Further the influence of rhythm upon word-order may be illustrated by a negative tendency. The later copyists of Procopius, ignoring or neglecting his rhythm, have often changed the word-order of his sentence-endings [1]). Thus in Procopius (ed. Haury I, p. 12[10]) *λόγου πολλοῦ ἄξιον* has been modified into *λόγου ἄξιον πολλοῦ.* In this way the rhythm of Procopius disappears, and it can be seen that the choice between different clausulae each of which he was able to choose has been made in such a way as to suit the rhythm.

The imitation of Herodotus by Procopius offers many examples of the influence of rhythm upon word-order [2]). *ὡς τάχεος εἶχε ἕκαστος* becomes *ὡς εἶχον τάχους* (ᾱ ᾱ ᾱ ᾱ); *νόμοισι μὲν τοιούτοισι οὗτοι χρέωνται* becomes *τοιούτοις μέν ἐχρῶντο Ἔρουλοι τὸ παλαιὸν νόμοις* (... ᾱ, ᾱ ...); *ἐτάσσοντο δὲ ὧδε* becomes *καὶ ἐτάξαντο ὧδε* (ᾱ ᾱ ᾱ ᾱ ᾱ).

With this question that of the influence of metre upon *choice of words* is closely connected. Also this influence exists undoubtedly, as it is one of the few means to arrive at a favourite metre. Further its existence is proved by

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1) See Crönert [on Haury].
2) See Braun, Die Nachahmung Herodots durch Prokop.

simple statistics which show the use of ὡς and ὅτι in the Phaedrus between syllables of different quantity. From these figures it can be inferred that the use of ὡς or ὅτι is influenced by the metre. The choice made between them has mostly been determined by the choice between good and bad metre, in casu the choice between logaoedic and other metres.

The importance of this influence can be seen from the following examples. As the metre has influenced the use of nomina, forms of the verb, etc. in the hexameter to a great extent, so the use of the κ-forms of the aorist in Demosthenes is determined by his tendency to avoid ⏑⏑⏑, ⏑⏑⏑⏑, etc. He prefers ἐδώκαμεν to ἔδομεν, ἐδώκατε to ἔδοτε, and so on. [1]) When comparing Isaeus 8, 12 with Demosthenes 30, 37 [2]) the same fact can be seen:

⏑⏑⏑ ἀκριβέστατον ἔλεγχον Isaeus.
ἀκριβεστάτην πασῶν Demosthenes.
⏑⏑⏑⏑ σύνιστε γάρ ὅτι has been omitted by Demosthenes.
⏑⏑⏑ τινὲς ἔδοξαν οὐ τἀληθῆ μαρτυρῆσαι.
τινὲς οὐ τἀληθῆ μαρτυρῆσαι ἔδοξαν.

Further the use of βούλεσθαι in Plato's later works becomes more and more limited in favour of ἐθέλειν [3])

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[1]) Fuhr, Rh. Mus. 57, 1902, p. 426 sqq.
[2]) Fuhr, Berl. Philol. Woch. 1904, col. 1030 sq.
[3]) This factor has been neglected by Rödiger, Glotta 8, 1917, p. 16.

(esp. *θεὸς ἐθέλει* ⏑⏑⏑⏑—), for *ὥσπερ* is used *καθάπερ*, for *ἕωσπερ μέχριπερ*, and so on. Other examples I gave before. In quotations conscious alterations can be stated.

More examples might easily be given to illustrate this tendency. I sincerely hope that I have been able to show the desirability or rather the urgent necessity of studying and investigating the relation between choice of words, order of words, and prose-metre in a much more satisfactory and exhaustive manner. In conclusion I want to make a few remarks on the importance of metre for textual criticism.

As regards criticism of manuscripts, we can investigate whether different manuscripts of the same author differ from the authentic text. These differences may point, as far as we are interested here, into two directions: they may be rhythmical deviations or non-rhythmical deviations. With non-rhythmical deviations I mean deviations which have been introduced without any attention to the metre or the rhythm of the author. With rhythmical deviations I mean deviations which have been introduced in order to produce a certain rhythm.

A peculiar instance of non-rhythmical deviations is offered by some manuscripts of Procopius of Caesarea. Crönert thinks that these alterations have been made in order to get a more 'open' rhythm, i.e. something like a rhythm with a

considerable number of unaccented syllables between the two last accented ones. The clausula: *ταύτῃ ᾤκηνται* for instance is changed into *ᾤκηνται ταύτῃ*; *ἀρχὴν ἔχων* into *ἔχων ἀρχὴν*; and so on.

The correctness of this remark seems to be liable to serious doubt. For if it were correct, there would be here a tendency hitherto unknown, viz. a tendency to get many (the more the better) unaccented syllables between the last two accented ones. This tendency has not yet been found anywhere. As, however, the principal feature of the rhythm of Procopius is a tendency to get few unaccented syllables between the two last accented ones (. . . ⏑̀ ⏑, ⏑́ . . ., . . . ⏑́ ⏑, ⏑́ ⏑, . . . ⏑́ ⏑ ⏑ ⏑́ . . .), most deviations from this rule may seem to produce a more 'open' rhythm.

A more interesting case is offered by the Byzantine manuscripts of Plutarch's Moralia of which I spoke before. Here the metre of Plutarch himself is changed into the rhythm of the later centuries. Here we observe the struggle between the sense for metre of the second century, and the sense for rhythm of a later period.

As regards the criticism of single passages, our knowledge of prose-metre may be used (1) in order to choose between readings of different manuscripts, (2) in order to alter the text of our manuscripts.

Of course the principal factors which have to be taken into account here are those which have nothing to

do with prose-metre itself. These factors are e.g. the general value of our manuscripts, the general character of the Greek language, the syntax of the author in question, and so on. These factors must form the basis of all further speculations. They must play a predominant part especially there where a certain reading occurs in all manuscripts, or in the archetype of our manuscripts.

In order to determine the importance of prose-metre for textual criticism, it is necessary to ascertain what value we would ascribe to it in such cases where we have to decide between two equivalent readings of two quite equivalent manuscripts. In this case, i.e. ceteris omnibus paribus, one will be inclined to decide in favour of the better metre. What is 'better' metre? I have tried to show before that it is not the 'best' clausula, i.e. neither the most frequent form at the end of the sentence, nor the form which is most favoured at the end of the sentence, as compared with the metre of the whole sentence. On the contrary, it is the form the frequency of which most deviates from non-metrical prose. I need not dwell any longer upon the different factors which are at work here: (1) the dependence of the author upon the very limited choice of words of the language, and upon syntactical rules, (2) the preference for metrical forms in the whole sentence, (3) the preference for metrical forms at the end of a sentence only. The strongest arguments

exist there where forms which occur rather frequently in the ordinary language are not or are hardly ever found in a certain text, such as e.g. ⏑⏑⏑, ⏑⏑⏑⏑, etc. in Demosthenes, ———————, ———————, etc. in Plutarch, —⏑⏑—⏒ and —⏑—⏒ as clausulae in Plato's later years, and so on. Much less convincing may be the argumentation where we have to decide between two more or less favoured forms.

As to such questions many premature conclusions have been made. They can mostly be traced to an application of metrical rules to textual criticism without sufficiently knowing the rules themselves. Thus Baehrens in his treatment of the clausula of Apulejus entirely neglects the form —⏑———————, so that he rejects readings such as: acrius contemplantes —⏑———————. The general merits, however, of his investigations are, of course, hardly diminished by these errors of less importance.

NINTH LECTURE.

With the philological problems presenting themselves to us in a statistical treatment of antique prose-rhythm some others of more mathematical nature are closely connected. Suppose that in one author on 1000 syllables 100 cases of —⏑— have been found, and, on the other hand, in an other author on 1000 syllables 200 cases of the same form, is there any reason to infer from this difference that there exists a real metrical difference between the two texts which cannot be ascribed to chance? Suppose that there is indeed a real metrical difference between these two authors, is it correct to measure this difference by means of a quotient $\frac{200}{100} = 2$? Would it be possible to find a figure which might express how much greater the chance is that a real difference exists in this case than that it is merely due to chance?

So far as I know, these problems, which I think we may regard as the most important of all those with which we have dealt as yet, have been fully neglected by recent scholars. The consequences of this attitude towards methodological questions have occasionally been shown by me. And yet the same or nearly the same questions have presented themselves in other branches of science,

such as e.g. in astronomy, in biology, in differential psychology. Now, in all these cases they have been settled in a rather satisfactory way. We shall often start from the results obtained there as a basis for the following researches.

1. In classifying the different metrical forms which may occur in antique prose, I often referred you to a scheme of the 128 combinations of eight syllables that may be either long or short, the quantity of the final one, however, being neglected. It is superfluous to emphasize the fact that in doing so, no length whatsoever of the clausula is postulated. To investigate eight syllables is not the same as to contend that the clausula comprises eight syllables. On the contrary, this is the only possible way to fix the real length of the clausula. Where we are able to state in the sentence a frequency of 2 % for ⏑—⏑—⏓, and of $2^1/_2$ % for ——⏑—⏓, on the other hand at the end of the sentence a frequency of 4 % for ⏑—⏑—⏓, and of 5 % for ——⏑—⏓, it appears from these simple facts that the quantity of the first of these five syllables in the clausula is indifferent.

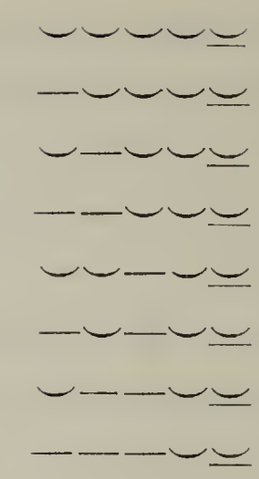
	Sentence-metre.	Clausula-metre.	Quotient.
⏑—⏑—⏓	2·0 %	4·0 %	2(+)
——⏑—⏓	2·5 %	5·0 %	2(+)

From this we may infer that the form —⏑—⏓ has been felt as a metrical unity in itself, and that the length of the clausula here comprises four syllables, although five or perhaps even more have been investigated.

In this way it becomes clear in what way the different combinations have to be grouped. At first sight we might be inclined to group in this way:

⏑⏑⏑⏑⏑⏑⏑⏓
—⏑⏑⏑⏑⏑⏑⏓
⏑—⏑⏑⏑⏑⏑⏓
⏑⏑—⏑⏑⏑⏑⏓
⏑⏑⏑—⏑⏑⏑⏓
⏑⏑⏑⏑—⏑⏑⏓

and so on. This way of grouping has been followed by Kaluscha. Serious objections have to be made against it. We are justified in assuming that the more distant a syllable from the end of the sentence the more its quantity will be metrically indifferent. Consequently it is desirable not to separate cases such as ⏑—⏑—⏓ and ——⏑—⏓, which differ only as regards their first syllable, or ⏑⏑⏑⏑⏓ and —⏑⏑⏑⏓, for which the same is true. On the contrary metrically they belong together. Therefore the best way of grouping is that in which the same combinations of the final syllables are put together, viz.:



and so on.

2. The reliability of the results of our investigation firstly depends on the exactness with which the quantity of the syllables investigated has been fixed. In doing so errors have undoubtedly been made. It is practically impossible to determine the quantity of hundreds of thousands of syllables without making mistakes now and then. Where, however, the material investigated is so large, such errors tend to neutralize each other. But we meet with another far more important difficulty. It is rather indifferent whether in comparing the prose-metre of Plutarch with that of Thucydides we shall take e.g. *ποιήσω* as ———— or as ⏑———; nor is it very important whether we shall regard *αὐτοῦ ἦν* as ————, or as —⏑—. Provided that we apply the same rules in both cases, they can never have bad consequences. There is no reason whatsoever to suppose that any rule consistently applied may cause a difference e.g. in favour of the frequency of

—⏑—⏒ in Plutarch. On the contrary, suppose we have registered a material of 1000 cases investigated in A (a non-metrically writing author), as well as in some other author, whom we may call B. We have assumed that muta cum liquida nowhere lengthens a syllable which contains a short vowel. We state that nowhere differences arise which point to a preference or an avoidance of some form in B.

Let the same procedure of collecting material be applied, but let us now assume that muta cum liquida lengthens a syllable everywhere. What will happen now? Many syllables which were short according to the first scansion become long now. These syllables are distributed in a most accidental way. Owing to this the number of cases of each combination in both statistics (i.e. that for the author A and that for the author B) will become larger in proportion as the number of long syllables which the combination contains, is larger, and the reverse. For instance, the combination ⏑⏑⏑⏑⏑⏑⏑⏒ will lose the greatest number of cases. If the syllables in question (i.e. those syllables containing a short vowel before muta cum liquida) were all penults, the influence of this procedure would be felt only in a special way. For instance the frequency of ———⏒ would increase at the expense of the frequency of ——⏑⏒. If they were all antepenults of the sentence, the frequency for instance of ———⏒

woulds increase at the expense of the frequency of —⏑—⏒; the 'double spondee' would get a higher percentage; in the same way the frequency of —⏑——⏒ would increase at the expense of the frequency of —⏑⏑—⏒, and so on. In both authors, in A as well as in B, this would be the case to the same extent. A comparison of the final figures resulting from our latter way of scanning would yield the same result as the figures of our former investigation, viz. that no metrical difference whatsoever would exist between both authors. *)

The question becomes quite different, when we apply different rules of scansion to these two authors. Suppose we compare authors living in times quite distant from one another, so that the pronunciation has considerably changed. Suppose that in A muta cum liquida lengthens by position, but not so in B. If in scanning one takes these differences into account, corresponding differences will arise in the statistics, which are caused by this factor only. It may appear that the author B suddenly shows a great frequency of —⏑—⏒, or other inexplainable tendencies. Nor need I say much on this point: in comparing the metres of two different authors one should apply exactly the same

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*) That is why the remarks of Münscher, who expresses his doubt as to the results of such researches, as it had not been clearly stated in what way dubious quantities had been regarded, are incorrect. Compare Bursian's Jahresbericht.

rules for each of them. Even if the pronunciation has changed according to time or place, these changes have to be quite neglected and on purpose. It does not matter how we regard either of these dubious cases, whether we suppose that muta cum liquida lengthens a syllable, or not. Suppose that it could be proved that in Plutarch the vowels ε, ο and υ had to be regarded as being long, this evolution had to be neglected. For if we did not, any comparison with Thucydides for instance would be made impossible. In comparing, however, the sentence-metre of one author with the clausulae of the same author, we are allowed to take it into account.

From this it appears again, how methodologically interesting the investigation of antique prose-rhythm is. When once by means of these seemingly inexact statistical methods the tendencies have been ascertained, the true quantity of the syllables can often be determined with the help of even these tendencies. If an author uses cases of muta cum liquida by preference there where the metrical tendencies favour a short syllable, e.g. *οὐκ ἀποκρούει, εἰς αὐτοὺς ἀποκλίνειν,* etc. at the end of a sentence, while he generally prefers —⏑⏑—⏓ to —⏑——⏓, this may become the clue to his metrical appreciation of muta cum liquida.

Then, it must be borne in mind that in the figures given for the frequency of the metrical forms in the whole

sentence, those for the forms occurring at the end of the sentence will necessarily be partly included. Should we try to exclude them from our statistics, we should be obliged to assume a certain length of the clausula, and it is this very length which we are trying to determine. In comparing, however, the figures for the sentence with those for the end of the sentence, the real differences will never disappear. This comparison will show all the metrical differences between the clausula and the remaining part of the sentence. If, for instance, an author wholly avoids ⏑⏑⏑— in the sentence, but seeks this same form as a sentence-ending, our statistics for the whole sentence will comprise some cases of it. Nevertheless its frequency in our clausula-statistics will be much greater, and in this manner the difference will appear very clearly.

In order to be able to compare results obtained by different scholars, it is desirable to mention what has been chosen in such dubious cases. Therefore I shall give a list of the principal rules applied here.

συν-, not *ξυν-*; *αἰεί* and *ἀεί* ——; *ποιεῖν* ——; a short vowel is not lengthened before muta cum liquida, except before *βμ, βν, γμ, γν, δμ, δν*; nor is a long vowel shortened before an initial vowel of a following word; elision of a short final vowel is accepted as a rule anywhere before an initial vowel of the next word (except of course *ὅτι* before a

vowel etc.) a long final vowel is never elided, nor shortened *αὐτοῦ ἦν* = ————;

3. In the second place the reliability of the results depends upon the extent of the material, that is the number of cases investigated. If we have investigated two clausulae of the author A, and two clausulae of the author B, we are hardly allowed to draw any inference whatsoever from the figures thus obtained. If we should find in A two forms —⏑—⏒, and in B two forms ————⏒, then this does not prove:

(1) that all clausulae of A are —⏑—⏒,

nor (2) that all clausulae of B are ————⏒,

nor (3) that there is any difference between the clausulae of A and those of B.

If, however, we should have investigated 1000 clausulae taken from A at random, all of which will prove to be of the form —⏑—⏒, and likewise from B 1000 clausulae, all of which will prove to be of the form ————⏒, we should be allowed to infer with great probability:

(1) that in A about 100 % of the clausulae are of the form —⏑—⏒,

(2) that in B about 100 % of the clausulae are of the form ————⏒,

(3) that there exists a difference between the clausulae-forms of A in general, and those of B in general.

From this example it will be clear to you that the number of cases investigated highly influences the reliability of the results.

I shall take another example.

If we should take from A three clausulae, one of which would prove to be of the form —⏑—⏒, the other, however, of the form ———⏒, we should not be able to infer that probably in A about 33 % of the clausulae would be of the form —⏑—⏒, and about 67 % of the form ———⏒. If, however, we should have found on 1000 clausulae 330 of the form —⏑—⏒, and 670 of the form ———⏒, this conclusion would hardly be premature. If a second group of 1000 cases would yield the same figures, our probability would virtually become a certainty.

The question which will occupy us next is the following: is it possible to determine in a scientific way what degree of certainty a material of 1000 cases is able to give?

4. It cannot be my task to deal here with the purely mathematical side of the subject, as it would not be possible for me to give you an independent judgment on such questions. Only the practical side of the problems can interest us.

An empirically found percentage represents only seldom quite exactly the true proportions. As a rule the

percentage forms only an approximation to the true ratios. The mean error of such a percentage can be expressed by a formula:

$$\text{mean error} = \sqrt{\frac{p(100-p)}{N}},$$

where p represents the percentage, and N the number of cases investigated. Can this formula be applied to our philological material?

Now, we can investigate whether in dividing our material into groups the formula $\varepsilon_1 = \sqrt{\frac{\Sigma d^2}{n-1}}$, where d = percentage of a single group minus the average percentage of the five groups, and n = the number of groups, agrees with the formula $\varepsilon_2 = \sqrt{\frac{p(100-p)}{N}}$, where p = percentage of a single group, and N = number of cases of the group.

In order to answer this question I divided my material for the sentence-metre of Livy into five groups of 200 cases. For each of these groups I calculated first the percentage of each of the sixteen possible combinations of 5 syllables (the last being taken as anceps), further of each 5 corresponding percentages the average, then with the help of these figures ε_1 and ε_2. Of course our material of every time five cases does not suffice to expect an exact agreement of ε_1 and ε_2.

TABLE.

Livy, sentence-metre, five groups of 200 cases.

Number of the form.	Form.	Five groups of 200 cases each; number of cases for each group.	Average %.	$\varepsilon_1 = \sqrt{\frac{\Sigma d^{2*})}{n-1}}$	$\varepsilon_2 = \sqrt{\frac{(p\,100-p)\dagger)}{N}}$	Difference between the last two colums, $\varepsilon_1 - \varepsilon_2$
1—8	⏑⏑⏑⏑≚	0 0 2 7 0	0·9%	1·5	0·7	+0·8
9—16	—⏑⏑⏑≚	4 9 3 5 2	2·3	1·4	1·1	+0·3
17—24	⏑—⏑⏑≚	4 6 5 7 6	2·8	0·6	1·2	—0·6
25–32	——⏑⏑≚	15 10 8 11 13	5·7	1·4	1·6	−0·2
33—40	⏑⏑—⏑≚	2 5 3 9 7	2·6	1·4	1·1	+0·3
41—48	—⏑—⏑≚	15 12 7 7 19	6·0	2·6	1·7	+0·9
49–56	⏑——⏑≚	13 13 14 16 10	6·6	1·1	1·8	—0·7
57—64	———⏑≚	15 15 25 30 26	11·1	3·4	2·2	+1·2
65—72	⏑⏑⏑—≚	9 3 5 6 4	2·7	1·2	1·1	+0·1
73—80	—⏑⏑—≚	15 12 8 13 15	6·3	1·4	1·7	—0·3
81—88	⏑—⏑—≚	2 10 15 9 7	4·3	2·4	1·4	+1·0
89—96	——⏑—≚	25 19 17 15 19	9·5	1·8	2·1	—0·3
97—104	⏑⏑——≚	7 16 5 7 7	4·2	2·2	1·5	+0.7
105—112	—⏑———≚	12 26 21 20 20	9·9	2·5	2·1	+0.4
113—120	⏑———≚	18 20 18 18 13	8·7	2·3	2·0	+1·3
121—128	————≚	44 24 46 20 32	16·6	5·8	2·6	+3·2

The result is that in 11 of the 16 cases the figure found in an a posteriori way is higher than the a priori one; in 5 cases it is smaller. It appears from this that indeed

*) $n = 5$

†) N = 200, p = average %.

the formula $\sqrt{\frac{p(100-p)}{N}}$, within the limits of the exactness necessary for our purpose, is applicable to our philological calculations.

4. In dealing with problems to be considered now we shall assume that the formula $\varepsilon = \sqrt{\frac{p(100-p)}{N}}$ for the mean error of an empirically found percentage is applicable to our philological material.

The question must be considered somewhat as follows. Let it be granted for the sake of argument that the Laws are a metrically homogeneous unity, and that the real percentage of the double trochees at the end of the sentence is 6. If this be the case, we may reason as follows. If a material of 1000 clausulae is taken from the Laws, and the number of double trochees is calculated, we shall get the figure *a*. Another group of 1000 clausulae will give for the same form a figure *b*, and so on. The errors which are made are *a*—6, *b*—6, etc. These errors are probably distributed in accordance with the law of accidental errors. Half the number of the figures *a*—6, *b*—6, etc., if distributed ideally, will lie between

$$-0{\cdot}6745\sqrt{\frac{p(100-p)}{N}} \text{ and } +0{\cdot}6745\sqrt{\frac{p(100-p)}{N}},$$

the other half lies outside these limits.

Only 454 on 10000 cases with lie outside the limits $-2\sqrt{\frac{p(100-p)}{N}}$ and $+2\sqrt{\frac{p(100-p)}{N}}$.

Only 26 on 10000 cases will lie outside the limits $-3\sqrt{\frac{p(100-p)}{N}}$ and $+3\sqrt{\frac{p(100-p)}{N}}$.

To simplify such calculations I give here a table, taken from W. Johannsen, *Elemente der exakten Erblichkeitslehre*, 2nd ed., Kopenhagen 1913, p. 74.

TABLE

of the number of deviations on 10000 which, in the case of an ideal distribution, will lie be between deviation = 0 and some positive or some negative deviation = $\frac{d}{\varepsilon}$.

d (deviation) ε	Number of deviations on 10000 between 0 and d.	d (deviation) ε	Number of deviations on 10000 between 0 and d.	d (deviation) ε	Number of deviations on 10000 between 0 and d.
0.00	0	1.50	4332	3.0	4987
0.05	199	1.55	4394	3.1	4990
0.10	398	1.60	4452	3.2	4993
0.15	596	1.65	4505	3.3	4995
0.20	793	1.70	4554	3.4	4997
0.25	987	1.75	4599	3.5	4998
0 30	1179	1.80	4641	3.6	4999
0.35	1368	1.85	4678	3.7	4999
0.40	1554	1.90	4713	3.8	4999
0.45	1736	1.95	4744	3.9	5000
0.50	1915	2.00	4773		5000
0.55	2088	2.05	4798		
0.60	2258	2.10	4821		
0.65	2422	2.15	4842		
0.70	2580	2.20	4861		
0.75	2734	2.25	4878		
0.80	2881	2.30	4893		
0.85	3023	2.35	4906		
0.90	3159	2.40	4918		
0.95	3289	2.45	4929		
1.00	3413	2.50	4938		
1 05	3531	2.55	4946		
1.10	3643	2.60	4953		
1.15	3749	2.65	4960		
1.20	3849	2.70	4965		
1.25	3944	2.75	4970		
1.30	4032	2.80	4970		
1.35	4115	2.85	4978		
1.40	4192	2.90	4981		
1.45	4265	2.95	4984		

5. So with the help of the figures obtained in this manner, it will be possible to determine how great the chance is that the difference between two percentages which are empirically found is the (exact or inexact does not matter) expression of a real difference, a true tendency. If it could be assumed as a certainty for instance, that the figure 14·2 % for the frequence of —⏑—⏒ in non-metrical prose is correct, and if we should find a frequency of 29 % of the same form in Plutarch, it could be calculated how much greater the chance is that there exists a real metrical difference between these two texts on this point, than that no such metrical difference exists.

Another question arises. Suppose that the frequency of —⏑—⏒ in non-metrical prose is 14·2 %, in Plutarch 29·0 %, how can this difference be measured? At first sight one would be inclined to measure the tendency which has caused the deviation of 29·0 % from 14·2 % by taking the difference between the two figures:

$$29{\cdot}0\ (\%) - 14{\cdot}2\ (\%) = 14{\cdot}8.$$

If this should be done, the conclusion must be accepted that the tendency causing a deviation of 16 % in metrical prose from 1 % in non-metrical prose is exactly as strong as that causing a deviation of 50 % in metrical prose from 65 % in non-metrical prose. And yet it is easy to see that, when only 1 % of a certain form occurs in non-metrical prose, it is much more difficult for an artist

to raise a figure from 1 (%) to 16 (%) than to raise a figure from 50 (%) to 65 (%). Owing to this difficulty in using the difference between two percentages as a formula for measuring the tendency, it appears to be more simple to express the strength of the tendency by means of a quotient $\frac{16}{1}$ and $\frac{65}{50}$.

Is this way of expressing the strength of the tendency quite correct? I am not able to answer this question. Leaving alone the question, whether it is possible at all to measure pscyhical tendencies in a scientific way, supposing for a moment that theoretically it would be possible to do so, it is extremely difficult to give this answer. In favour, however, of the quotient some undeniable facts may be cited.

If it be assumed that in non-metrical prose the form —⏑—⏓ has a frequency of 12 %, and that in this prose the ratio in which short syllables stand to long syllables is 1 : 3, the frequency of

⏑—⏑—⏓ will be 3 %,
and of ——⏑—⏓ will be 9 %.

Now, if there exists some metrical text, where this ratio of the number of long syllables to that of the short ones is quite the same, but where exists a preference for one metrical form only, viz. —⏑—⏓, the frequency

of which form is twice as great, viz. 24 %, we shall get the following scheme:

	Non-metrical prose.	Metrical prose.	Quotient.
⏑—⏑—⏓	3 %	6 %	2
——⏑—⏓	9 %	18 %	2

I think, we are justified in assuming that the tendency which has caused the higher percentage in the metrical text is the same for ⏑—⏑—⏓ as for ——⏑—⏓. If, however, this tendency should be the same, it ought to be expressed in quite the same way in both cases. Now, if the difference between the percentages is taken as a means to designate the tendency, we get 3 for ⏑—⏑—⏓, and 9 for ——⏑—⏓. If the quotient is taken, we get 2 in both cases. Neither the difference, nor a correlation-coefficient can express here the true ratios.

TABLES.

In investigating Greek texts according to the method of Marbe I have neglected all interpunctions. Those who are not accustomed to deal with a statistical material collected in order to determine tendencies, a material the errors of which tend to neutralize each other, as for instance in experimental psychology, may have doubts about the reliability of this method.

Neglecting all interpunctions enables us to exclude this subjective factor introduced by the editors into different texts. The varying interpunction would make any comparison between different authors, or even between different passages of the same author in different editions impossible. One serious objection may be made against this procedure. By applying it, longer series of long, or longer series of short syllables are often introduced which are not meant as such by the author. For instance, if an author avoids ⏑⏑⏑, he need not avoid ⏑⏑⏑ at the end of a period, for there it may represent ⏑⏑—: the last syllable of a sentence or of a part of a sentence may be 'anceps'. In the mean time this introduction of these longer series of syllables will never be a difficulty in stating the general tendencies, as e.g. avoidance of longer series of long syllables. If it influences the figures for some forms as —⏑⏑⏑⏑⏑—, and others, the same holds good for all authors investigated.

When once the general tendencies have been determined, one may investigate whether the quantity of the last syllable is indifferent, and whether seeming exceptions will have to be explained by neglecting the interpunctions. The same holds good for the scanning of the clausulae: statistical-philological researches must in the first place exclude subjective factors, without caring in the least for the reproach of having made mechanical calculations.

If we should be inclined to take the interpunction into account, we must accept the interpunction of the editors, or we must make our own interpunction. In the first case different authors would be treatened in a different way, in the second case a new subjective factor would be introduced, and a really dangerous one. For we are inclined to model our material according to the results we expect. If we expect an avoidance of ⏑⏑⏑⏑, we are inclined to reed ⏑⏑,⏑⏑ instead of ⏑⏑⏑⏑, and so on. If interpunction is taken into account, we run the risk of finding too much in our material; if interpunction is neglected we may find too little in it. The first-mentioned procedure gives results which can hardly be corrected later on; the results of the last-mentioned, on the other hand, can be corrected. For if once the tendencies have been found — errors tend to neutralize each other — we can investigate what part the interpunction plays in the rhythm. In Demosthenes a series of short syllables is often broken by interpunction, in Plutarch the same is true for series of long ones. Nevertheless our method clearly shows the tendencies working in both authors, and we can accept the results without the least reserve. In a material, on the other hand, which does not neglect interpunction, errors do not tend to neutralize each other — on the contrary, they do just reverse.

Frequency of simple metrical forms on 1000 syllables in different authors. The figures are derived from a material of every time 1000 syllables.

THUCYDIDES.

Book I.

⏑⏑	180	161	150	165	160	200	165	188	173	155	169	167
⏑—⏑	113	70	89	98	113	107	93	105	99	91	109	85
⏑2⏑	57	58	47	62	57	60	55	64	68	62	46	49
⏑3⏑	40	28	46	40	35	37	43	40	36	31	33	30
⏑4⏑	18	32	23	19	15	13	19	14	13	21	17	32
⏑5⏑	12	13	13	8	10	7	5	8	15	14	10	6
⏑6⏑	2	7	4	8	13	11	8	6	8	6	5	10
⏑7⏑	4	3	6	5	5	3	4	1	3	7	5	4
⏑8⏑	3	3	4	1	1	2	2	2	4	4	8	3
⏑9⏑	1	3	1	1	2	3	2	5	1	1	3	2
⏑10⏑		3	1	0	0	0	2	1	0	1	1	1
⏑11⏑		0	1	1	0		2		1	0		1
⏑12⏑		0	0	0	1		1			0		1
⏑13⏑		1	0	0						1		0
⏑14⏑			1	0								1
⏑15⏑				1								

XENOPHON.

Cyropaedia, book I.

⏑⏑	161	171	149	137	136	185	179	172	231	142	187	162
⏑—⏑	78	77	96	95	92	101	110	106	103	114	109	85
⏑2⏑	59	44	61	48	45	47	55	58	45	40	50	51
⏑3⏑	35	43	37	39	31	51	36	38	41	40	37	31
⏑4⏑	14	24	16	20	21	17	22	17	25	20	17	18
⏑5⏑	15	6	18	16	20	9	14	8	13	14	6	15
⏑6⏑	10	11	9	13	7	8	7	7	6	5	9	11
⏑7⏑	6	5	1	1	5	4	4	4	5	5	7	7
⏑8⏑	4	2	3	5	3	1	3	2	2	1	4	3
⏑9⏑	2	7	1	0	6	1	1	0	1	0	1	3
⏑10⏑	2	2	1	0	2	0	0	0	0	0	1	0
⏑11⏑	0	0		0	0	0	1	0	0	0	1	0
⏑12⏑	0	0		1		1	1	0	1	0		2
⏑13⏑	0	1		1		0		0		0		
⏑14⏑	1					1		1		0		
⏑15⏑										0		
⏑16⏑										1		

ISOCRATES.

Panegyricus, I sqq.

⏑⏑	140	159	173	171	156	158	182	152	133	162	170	151
⏑—⏑	84	74	75	85	87	97	84	89	78	79	91	99
⏑2⏑	57	59	48	51	47	57	61	72	70	67	54	53
⏑3⏑	32	40	36	36	41	35	38	23	31	44	37	29
⏑4⏑	22	19	20	23	17	20	12	25	22	15	21	21
⏑5⏑	17	11	9	17	13	13	17	11	11	16	11	18
⏑6⏑	8	11	11	4	12	6	5	8	7	6	10	5
⏑7⏑	5	5	5	4	7	2	4	4	5	6	5	4
⏑8⏑	1	3	6	3	2	6	4	3	2	4	2	2
⏑9⏑	3	1	4	2	2	2	1	3	2	0	0	6
⏑10⏑	1	2	0	1	1	1	1	1	1	1	0	0
⏑11⏑	0	1	2	0		1	1	1	0	0	2	0
⏑12⏑	0			1					0	0	0	0
⏑13⏑	0			0					1	0	1	1
⏑14⏑	0			1					0	1		
⏑15⏑	1								0			
⏑16⏑	0								1			
⏑17⏑	0											
⏑18⏑	1											

DEMOSTHENES.

	Philipp. *A.*		Olynth. *A.*		Olynth. *B.*		Olynth. *Γ.*	
⏑⏑	147	134	118	158	144	114	165	133
⏑—⏑	103	111	109	130	108	123	106	102
⏑2⏑	74	73	68	69	69	61	70	75
⏑3⏑	28	36	48	46	39	40	41	43
⏑4⏑	24	21	30	17	21	21	21	23
⏑5⏑	12	8	6	2	14	14	9	10
⏑6⏑	8	5	7	4	7	7	5	7
⏑7⏑	3	3	1	3	3	2	5	2
⏑8⏑	4	2		2		1	5	1
⏑9⏑		3	1		1	3		2
⏑10⏑		1	2					
⏑11⏑				1				

[DEMOSTHENES].

Πρὸς τὴν ἐπιστολὴν τοῦ Φιλίππου.

⏑⏑	172	150
⏑—⏑	95	86
⏑2⏑	67	74
⏑3⏑	43	38
⏑4⏑	18	23
⏑5⏑	14	14
⏑6⏑	2	8
⏑7⏑	4	2
⏑8⏑	2	3
⏑9⏑	2	1
⏑10⏑	0	
⏑11⏑	1	

PLATO.

Republic.

Book *B*			*Γ*		*Δ*		*E*	
⏑—⏑	119	102	102	105	93	83	118	118
⏑2⏑	65	46	57	62	42	67	48	65
⏑3⏑	45	42	29	46	32	28	30	31
⏑4⏑	14	17	24	15	25	15	21	28
⏑5⏑	9	13	11	16	15	2	10	9
⏑6⏑	6	6	7	4	6	3	8	4
⏑7⏑	0	5	6	2	4	4	4	3
⏑8⏑	0	2	2	1	2	6	3	3
⏑9⏑	0	2	1	2	1	3	1	1
⏑10⏑	0	1	2		0	1	1	
⏑11⏑	1		1		1	0	0	
⏑12⏑	1				0	0	1	
⏑13⏑					0	0		
⏑14⏑					1	0		
⏑15⏑						0		
⏑16⏑						0		
⏑17⏑						0		
⏑18⏑						0		
⏑19⏑						0		
⏑20⏑						1		

PLATO.

Laws.

Book I.			II.		III.		IV.	
⏑—⏑	81	82	66	85	93	76	96	83
⏑2⏑	50	62	59	57	53	59	42	68
⏑3⏑	32	28	27	31	28	35	31	30
⏑4⏑	17	20	22	23	14	21	27	15
⏑5⏑	9	14	14	13	14	13	15	11
⏑6⏑	6	9	9	2	9	4	9	3
⏑7⏑	6	4	8	6	6	5	3	5
⏑8⏑	1	5	0	4	1	3	1	6
⏑9⏑	3	0	4	2	2	0	1	3
⏑10⏑	2	1	1	1	0	2		1
⏑11⏑	0		1	2	1	1	1	
⏑12⏑	1		1			0		
⏑13⏑	1					1		
⏑14⏑							1	

PLUTARCH.

Pyrrhus. Book I.

⏑⏑	237	196	190	225	186	229	205	202	163	171	184	197
⏑—⏑	144	143	152	135	142	134	148	141	126	135	138	127
⏑2⏑	60	71	80	77	66	72	76	68	80	92	65	68
⏑3⏑	40	36	35	27	37	34	36	32	43	29	32	32
⏑4⏑	23	17	12	13	21	14	15	17	16	15	25	13
⏑5⏑	4	6	4	7	6	8	7	8	6	6	10	11
⏑6⏑	1	4	2	5	2	1	3	1	5	2	2	2
⏑7⏑		1	2	3	2	2		0	3	3	1	3
⏑8⏑			0	1	0	1		0		0	0	4
⏑9⏑			0		0			0		1	1	0
⏑10⏑			0		1			1			1	0
⏑11⏑			0									0
⏑12⏑			1									1

[PLUTARCH].

Consolatio ad Apollonium.

⏑⏑	160
⏑—⏑	102
⏑2⏑	75
⏑3⏑	34
⏑4⏑	17
⏑5⏑	11
⏑6⏑	5
⏑7⏑	4
⏑8⏑	0
⏑9⏑	4
⏑10⏑	1

PLUTARCH.

Συγκρίσεις.

	Dem.	a. Ant.	Thes.	a. Rom.	Solon	a. Popl.	Arist.	a. Cato.
⏑⏑	187	188	171	178	201	204	185	172
⏑—⏑	131	119	134	143	132	155	134	139
⏑2⏑	74	74	79	73	72	70	70	78
⏑3⏑	40	36	41	30	33	31	45	38
⏑4⏑	19	19	14	20	15	14	15	16
⏑5⏑	8	14	6	9	7	8	5	7
⏑6⏑	2	1	4	2	4	2	7	2
⏑7⏑	1	1	1	1	3	2	0	2
⏑8⏑	1	1		2		0	1	1
⏑9⏑		1				1		

FREQUENCY OF DIFFERENT FORMS ON 1000 SYLLABLES.

Averages.

	Thucyd.	Xenoph.	Isocr.	Demosth.	[Demosth.]	Plato Rep.	Laws.	Plut.	[Plut.]	Plut. Syncr.
⏑⏑	171·1	167·7	158·9	**139·1**	161·0			198·8	160·0	185·8
⏑—⏑	97·7	97·2	85·2	111·5	90·5	105·0	82·8	**138·8**	**102·0**	**137·1**
⏑2⏑	57·1	50·3	58·0	69·9	70.5	56·5	56·3	**72·9**	75·0	**73·8**
⏑3⏑	36·6	38·3	35·2	40·1	40·5	35·4	30·3	34·4	34·0	36·8
⏑4⏑	19·7	19·3	19·8	22·3	20·5	19·9	19·9	**16·8**	17·0	**16·5**
⏑5⏑	10·1	12·8	13·7	9.4	14·0	7·6	12·9	**6·9**	11·0	**8·0**
⏑6⏑	7·3	8·6	7·8	6·3	5·0	5·5	6·4	**2·5**	5·0	**3·0**
⏑7⏑	4·2	4·5	4·7	2.8	3·0	3·5	5·4	1·8	4·0	1·4
⏑8⏑	3·1	2·8	3·2	1·9	2·5	2·4	2·6	0·5		0·8
⏑9⏑	2·1	1·9	2·2	1·3	1·5	1·4	1·9	0·2	4·0	0·3
⏑10⏑	0·8	0·7	0·8	0·4		0·4	1·0	0·3	1·0	
⏑11⏑	0·5	0·2	0·7	0·1	0·5	0·4	0·8			
⏑12⏑	0·3	0·5	0·1			0·3	0·3	0.2		
⏑13⏑	0·2	0·2	0·3				0·1			
⏑14⏑	0·2	0·3	0·2			0·1	0·1			
⏑15⏑	0·1		0·1							
⏑16⏑		0·1	0·1							
⏑17⏑										
⏑18⏑			0·1							
⏑19⏑										
⏑20⏑						0·1				

THUCYDIDES.

Book I.

— —	302	399	384	340	341	312	361	317	343	372	347	384
⏑ — — ⏑	139	128	135	138	142	139	139	137	135	142	123	110
—2—	66	51	71	69	80	63	63	57	72	62	73	80
—3—	26	26	21	28	22	23	29	35	30	20	31	24
—4—	13	11	8	6	2	14	9	8	8	12	10	7
—5—	3	0	2	3	4	7	1	5	3	3	1	3
—6—	1	5	1	2	2	3	1	1	1	1		0
—7—	1					1	0	2				1
—8—							0					
—9—							1					

XENOPHON.

Cyropaedia, book I.

— —	392	411	344	379	402	339	358	303	347	313	341	391
—⏑—	124	128	141	147	149	124	154	144	111	144	127	128
—2—	63	56	64	44	51	69	60	53	66	65	77	65
—3—	28	26	30	19	29	31	30	29	32	18	28	23
—4—	8	7	9	9	3	11	11	7	20	11	14	8
—5—	2	5	1	4	2	0	4	7	6	2	3	3
—6—	2		2	1	2	3	2	1	1	1		3
—7—			1	0		1		0	2			
—8—				1				1				

ISOCRATES.

Panegyricus I sqq.

— —	406	382	395	374	323	358	345	365	373	380	361	369
—⏑—	135	119	113	131	121	138	121	137	128	140	132	128
—2—	64	68	54	52	68	68	68	69	74	54	54	78
—3—	23	24	27	30	35	19	23	24	20	36	36	21
—4—	7	11	16	11	6	13	13	7	8	9	9	6
—5—	1	1	1	5		2	1	1	0	1	3	2
—6—	1					1	5	2	3	1	1	1
—7—		1	1	1								
—8—			1									

DEMOSTHENES.

	Philipp. *A.*		Olynth. *A.*		Olynth. *B.*		Olynth. *Γ.*	
— —	336	330	345	282	327	338	341	340
—⏑--	128	157	154	129	130	167	137	149
—2—	129	93	112	132	126	95	126	101
—3—	7	13	3	10	5	5	13	13
—4—		2		2		3	3	2
—5—	1	1			2		1	
—6—		1						
—7—								
—8—								

[DEMOSTHENES].

Πρὸς τὴν ἐπιστολὴν τοῦ Φιλίππου.

— —	337	356
—⏑—	134	140
—2—	73	72
—3—	28	22
—4—	9	10
—5—	4	1

PLATO.

Republic.

Book	*B.*		*Γ.*		*Δ.*	
—⏑—	149	110	140	162	151	165
—2—	74	75	53	62	56	64
—3—	35	29	39	25	29	27
—4—	9	12	5	6	11	11
—5—	1	4	2	2	7	
—6—	2	3	1		1	
—7—	0					1
—8—	1					

PLATO.

Laws.

Book	I.		II.		III.		IV.	
—⏑—	87	128	128	122	98	118	108	113
—2—	57	43	41	50	49	42	56	42
—3—	43	38	30	36	50	41	41	43
—4—	13	11	12	10	17	16	12	15
—5—	12	4	4	1	4	6	5	6
—6—	1	4	3	3	3	3	2	3
—7—			2		1		1	
—8—								
—9—				2				

PLUTARCH.

Pyrrhus. Book I.

— —	233	244	235	228	251	238	236	229	281	255	277	282
—⏑—	140	145	160	142	165	138	161	150	178	177	157	153
—2—	58	68	79	60	51	65	61	65	54	50	53	49
—3—	61	51	44	51	51	50	48	51	45	49	55	48
—4—	7	6	5	11	7	6	9	6	5	5	4	8
—5—	4	2	2	3	3	5	4	3	1	2	1	4
—6—	2			2		2	1	1			1	0
—7—						1						0
—8—						0						1
—9—						0						
—10—						0						
—11—						1						

PLUTARCH.

Consolatio ad Apollonium.

— —	328
—⏑—	154
—2—	56
—3—	27
—4—	10
—5—	3
—6—	
—7—	
—8—	1
—9—	1

PLUTARCH.

Συγκρίσεις.

	Dem. a. Ant.		Thes. a. Rom.		Sol. a. Popl.		Arist. a. Cato.	
— —	266	285	253	259	249	236	267	259
—⏑—	165	152	142	168	148	153	165	171
—2—	52	52	43	52	49	56	61	57
—3—	45	40	50	54	59	55	45	40
—4—	11	13	2	2	7	4	10	9
—5—	3	3	3	3	2	4	1	2
—6—		1	2		1	2		

FREQUENCY OF DIFFERENT FORMS ON 1000 SYLLABLES.

Averages.

	Thucyd.	Xenoph.	Isocr.	Demosth.	[Demosth.]	Plato Rep. Laws.		Plut.	[Plut.]	Plut. Syncr.
— —	350·2	360·0	369·3	329·9	346·5			**249·7**	328·0	**259·3**
— ⏑ —	133·9	133·8	128·6	143·9	137·0	146·2	112·8	155·0	154·0	158·0
—2—	67·3	61·1	64·3	114·3	72.5	64·0	47·5	59·4	57·0	52·8
—3—	26·3	26·9	26·5	**8·6**	25·0	30·7	40·3	**50·3**	27·0	48·5
—4—	9·0	9·8	9·7	**1·5**	9·5	9·0	**13·3**	**6·6**	10·0	7·3
—5—	2·9	3·3	1·5	**0·6**	2·5	·2·7	**5·3**	2·8	3·0	**2·6**
—6—	1·5	1·5	1·3	**0·1**		1·2	**2·8**	0·8		0·8
—7—	0·4	0·3	0·3				**0·5**	0·1		
—8—		0·2	0·1			0·2		0·1	1·0	
—9—	0·1						**0·3**		1·0	
—10—										
—11—								0·1		

FREQUENCY OF EACH OF THE 128 FORMS IN DIFFERENT AUTHORS.

For Thucydides Hude's edition has been used. For his sentence-metre the beginning of the first book has been scanned. For his clausula see my paper in Classical Quarterly 1915, p. 231 sqq.

For Isocrates the edition of Benseler and Blass, Leipzig 1886, has been used.

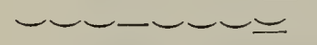
For Xenophon the 'editio minor' of A. Hug, 1905, has been used. The beginning of the Cyropaedia has been taken.

For Demosthenes the edition of Weil has been used. The figures for his sentence-metre have been taken from the first 1000 syllables of Phil. *A*, item of Olynth. *A* and *B*, and the others from the beginning of Olynth. *Γ*. The clausulae of Demosthenes (898 cases) are those of Phil. *A*, Olynth. *A*, *B*, *Γ*, *Περὶ τῆς εἰρήνης*, Phil. *B*, *Περὶ τῶν ἐν Χερρονήσῳ*, Phil. *Γ*, *Περὶ συντάξεως*.

For Plutarch the edition of Lindskog and Ziegler has been used; for the other lives that of Sintenis; for the Moralia that of Hatsidakis. For his sentence-metre the beginning of the live of Pyrrhus has been investigated. For his clausula see Classical Quarterly 1915, p. 231—32.

For Plato the edition of Burnet has been used. The figures for his sentence-metre have been taken from the beginning of the first book of the Laws.

For Philo the edition of Cohn and Wendland has been made use of. The figures of his sentence-metre have been taken from the beginning of *Περὶ φιλανθρωπίας* (vol. V, p. 279 etc.) The figures for his clausulae have been derived from vol. V, p. 279 sqq. (*Περὶ φιλανθρωπίας* etc., 500 cases).

		Thucydides. Sentence-metre.	Thucydides. Clausula.	Xenophon. Sentence-metre.	Demosthenes. Sentence-metre.	Demosthenes. Clausula.	Plutarch. Sentence-metre.	Plutarch Clausula.	Plato. Laws. Sentence-metre.	Philo. Sentence-metre.	Philo. Clausula.	Isocrates. Clausula.
Sum total:		1000	1000	1000	1000	898	1000	1000	1000	1000	500	338
1		0	0	0	0	1	1	1	2	2	0	1
2		2	1	2	1	0	2	2	1	4	2	0	0
3		4	3	5	1	0	3	6	2	5	0	3	0
4		1	2	6	2	3	1	2	3	10	5	6	1	0
5		3	3	5	2	1	1	2	4	4	9	2	1	0
6		4	6	7	2	0	1	2	5	8	2	5	0	1
7		3	6	5	3	0	0	3	4	3	6	7	0	0
8		3	6	9	3	0	2	5	2	4	5	8	0	0
9		1	5	5	4	1	1	7	12	7	6	5	4	1
10		4	3	4	5	3	3	9	16	15	10	6	6	1
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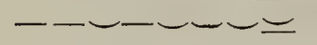
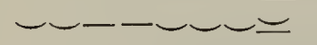
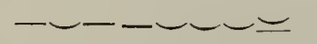
12		7	7	7	6	3	1	6	12	7	5	9	7	1
13		3	7	7	7	0	3	9	13	14	10	5	6	2
14		5	9	5	3	2	4	9	10	18	8	8	7	2
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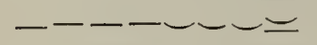
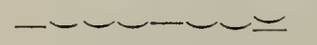
16		7	6	11	5	2	4	11	19	11	12	10	11	4
17		3	4	1	0	0	0	2	3	5	4	1	5	0
18		2	4	1	8	1	2	9	11	3	6	3	5	0
19		6	8	5	3	7	6	6	4	2	3	8	5	0
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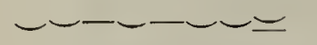
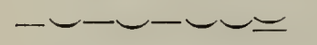
21		3	6	2	1	5	2	11	17	6	3	7	2	1
22		6	5	1	5	10	10	12	9	8	7	7	6	1
23		5	4	4	5	8	5	9	7	10	4	3	1	1
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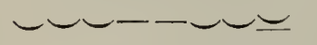
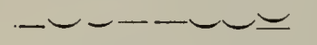
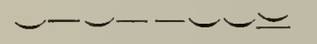
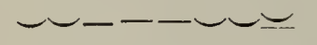
25		4	3	3	1	0	0	10	4	5	6	3	0	0
26		6	6	5	11	9	11	7	3	4	8	6	2	1
27		9	0	8	7	10	5	15	3	6	5	9	4	1
28		7	3	8	5	6	8	8	7	9	12	9	3	1
29		2	8	6	8	11	3	8	3	8	11	6	1	1
30		13	6	8	10	5	7	8	12	7	7	10	1	1
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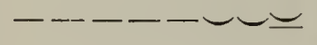
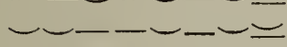
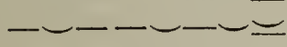
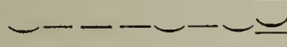
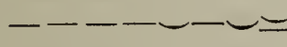
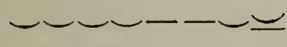
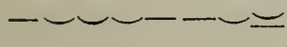
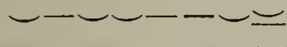
32		15	6	13	15	5	6	1	3	4	12	10	2	4

		Thucydides. Sentence-metre.	Thucydides. Clausula.	Xenophon. Sentence-metre.	Demosthenes. Sentence-metre.	Demosthenes. Clausula.	Plutarch. Sentence-metre.	Plutarch. Clausula.	Plato. Laws. Sentence-metre.	Philo. Sentence-metre.	Philo Clausula.	Isocrates. Clausula.
Sum total:		1000	1000	1000	1000	1000	898	1000	1000	1000	1000	1000	500	338
33		1	4	3	1	0	1	4	0	2	1	2	1	0
34		1	3	6	2	2	0	2	0	2	9	3	1	1
35		3	7	5	6	3	0	14	3	9	6	9	1	1
36		8	4	9	8	1	3	7	5	14	7	14	2	2
37		6	6	3	2	6	4	14	8	5	4	5	6	1
38		7	7	3	4	18	8	12	3	7	4	6	10	0
39		8	12	4	4	11	7	8	5	5	0	11	11	1
40		8	2	5	10	9	13	7	5	5	11	9	4	1
41		6	3	2	4	0	0	4	2	0	7	5	1	0
42		10	6	4	5	11	4	11	4	4	3	10	0	0
43		4	2	1	5	3	3	5	2	1	0	7	0	0
44		4	6	5	6	16	8	10	3	0	6	5	1	1
45		4	2	11	1	7	6	11	4	3	2	5	1	0
46		4	2	5	7	12	10	9	3	8	4	13	2	1
47		6	7	5	11	7	7	16	3	7	5	6	1	1
48		13	11	2	12	11	5	6	2	4	10	13	1	2
49		0	2	1	3	0	0	2	2	3	2	6	4	0
50		6	5	2	2	1	2	14	6	4	9	11	3	1
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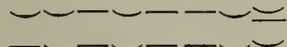
52		7	4	8	11	15	17	9	6	7	8	10	4	0
53		4	8	4	6	8	5	8	1	6	1	4	4	2
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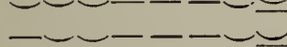
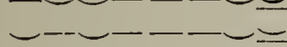
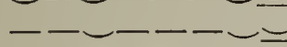
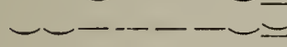
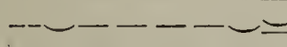
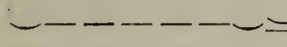
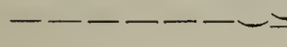
56		11	4	6	8	13	13	8	5	6	14	10	6	3
57		11	7	4	10	2	1	9	3	2	13	5	0	0
58		7	6	6	10	16	9	4	7	3	2	7	7	0
59		6	8	11	8	5	6	12	5	4	3	8	1	1
60		16	9	6	12	16	8	11	7	2	7	8	10	3
61		7	8	8	6	14	9	5	4	7	10	9	4	2
62		14	3	10	8	11	9	17	2	6	15	20	8	1
63		7	3	11	11	4	16	7	7	4	13	8	6	2
64		26	12	13	26	17	9	3	7	2	16	11	9	6

		Thucydides. Sentence-metre.	Thucydides. Clausula.	Xenophon. Sentence-metre.	Demosthenes. Sentence-metre.	Demosthenes. Clausula.	Plutarch. Sentence-metre.	Plutarch. Clausula.	Plato. Laws. Sentence-metre.	Philo. Sentence-metre.	Philo. Clausula.	Isocrates. Clausula.
Sum total:		1000	1000	1000	1000	898	1000	1000	1000	1000	500	338
65	⏑⏑⏑⏑⏑⏑—⏓	2	5	2	1	0	1	7	2	3	1	2
66	—⏑⏑⏑⏑⏑—⏓	4	3	10	2	1	2	6	3	6	4	2
67	⏑—⏑⏑⏑⏑—⏓	4	5	6	3	0	3	6	6	5	3	3
68	— —⏑⏑⏑⏑—⏓	11	7	8	4	1	8	7	3	6	8	6
69	⏑⏑—⏑⏑⏑—⏓	4	4	4	7	3	10	14	10	8	3	4
70	—⏑—⏑⏑⏑—⏓	3	10	3	6	3	19	3	18	5	5	4
71	⏑— —⏑⏑⏑—⏓	7	18	6	8	1	3	18	15	6	12	13	4	7
72	— — —⏑⏑⏑—⏓	13	15	9	10	4	5	11	12	16	15	11	11	5
73	⏑⏑⏑—⏑⏑—⏓	4	5	6	5	0	1	6	3	5	4	2	0	0
74	—⏑⏑—⏑⏑—⏓	7	11	14	4	29	25	5	7	4	1	6	2	5
75	⏑—⏑—⏑⏑—⏓	5	14	6	4	8	13	10	6	4	3	5	2	4
76	— —⏑—⏑⏑—⏓	9	12	13	5	18	17	7	8	4	5	21	2	3
77	⏑⏑— —⏑⏑—⏓	7	9	11	4	22	12	5	5	7	2	3	1	7
78	—⏑— —⏑⏑—⏓	7	8	5	9	17	10	13	7	8	6	5	1	2
79	⏑— — —⏑⏑—⏓	10	11	5	8	16	13	4	4	5	13	11	1	9
80	— — — —⏑⏑—⏓	16	11	16	17	17	14	1	7	10	18	11	1	10
81	⏑⏑⏑⏑—⏑—⏓	4	3	3	3	0	2	5	11	8	4	3	1	1
82	—⏑⏑⏑—⏑—⏓	6	12	9	6	0	3	10	20	23	9	12	2	4
83	⏑—⏑⏑—⏑—⏓	9	5	10	3	11	9	14	14	16	2	5	3	1
84	— —⏑⏑—⏑—⏓	11	10	9	9	14	10	6	19	14	5	8	8	3
85	⏑⏑—⏑—⏑—⏓	7	7	8	8	4	10	9	17	14	3	8	6	2
86	—⏑—⏑—⏑—⏓	7	5	8	6	2	8	7	11	9	4	3	3	0
87	⏑— —⏑—⏑—⏓	8	6	2	3	5	7	9	18	17	4	4	2	1
88	— — —⏑—⏑—⏓	13	11	20	17	11	16	9	18	24	8	7	1	7
89	⏑⏑⏑— —⏑—⏓	7	0	8	3	0	1	9	20	12	6	4	11	4
90	—⏑⏑— —⏑—⏓	6	11	6	5	14	16	10	16	34	10	11	5	2
91	⏑—⏑— —⏑—⏓	7	14	5	6	10	5	5	26	16	8	10	4	0
92	— —⏑— —⏑—⏓	16	13	13	8	8	22	19	18	21	12	10	11	9
93	⏑⏑— — —⏑—⏓	10	12	9	13	9	12	12	11	25	6	6	3	2
94	—⏑— — —⏑—⏓	14	8	11	10	10	18	10	28	21	2	16	8	6
95	⏑— — — —⏑—⏓	5	7	8	7	10	14	7	26	18	13	12	10	5
96	— — — — —⏑—⏓	14	16	15	21	16	17	6	23	14	13	8	12	11

		Thucydides. Sentence-metre.	Thucydides. Clausula.	Xenophon. Sentence-metre.	Demosthenis. Sentence-metre.	Demosthenes. Clausula.	Plutarch. Sentence-metre.	Plutarch. Clausula.	Plato. Laws. Sentence-metre.	Philo. Sentence-metre.	Philo. Clausula.	Isocrates. Clausula-metre.
Sum total:		1000	1000	1000	1000	898	1000	1000	1000	1000	500	338
97	⏑⏑⏑⏑⏑–––‖	2	3	6	2	0	1	4	3	1	5	2	3	0
98	–⏑⏑⏑⏑––‖	6	6	8	5	0	2	3	6	1	3	5	6	5
96	⏑–⏑⏑⏑––‖	6	9	9	7	1	1	10	6	6	10	12	8	2
100	––⏑⏑⏑––‖	11	10	11	10	0	3	8	12	13	20	9	6	4
101	⏑⏑–⏑⏑––‖	2	14	15	7	14	3	7	2	7	7	10	2	4
102	–⏑–⏑⏑––‖	5	11	12	5	17	9	17	6	10	5	6	3	4
103	⏑––⏑⏑––‖	13	14	14	9	22	9	6	6	9	6	13	3	4
104	–––⏑⏑––‖	6	19	22	16	19	12	9	5	4	8	13	0	5
105	⏑⏑⏑–⏑––‖	11	5	12	5	1	1	11	9	4	15	9	5	2
106	–⏑⏑–⏑––‖	6	14	15	6	15	7	8	12	17	3	11	11	1
107	⏑–⏑–⏑––‖	13	9	7	9	7	6	11	12	12	6	8	9	6
108	––⏑–⏑––‖	10	8	8	13	8	11	7	13	16	8	17	14	7
109	⏑⏑––⏑––‖	12	12	10	7	7	5	4	10	8	8	8	8	4
110	–⏑––⏑––‖	7	10	12	8	14	15	8	14	13	12	17	11	5
111	⏑–––⏑––‖	10	12	16	13	12	12	10	17	12	10	15	11	6
112	––––⏑––‖	19	21	16	17	15	15	6	14	13	13	13	11	11
113	⏑⏑⏑⏑–––‖	11	3	3	4	0	0	4	2	2	8	4	2	1
114	–⏑⏑⏑–––‖	9	16	10	16	1	1	14	4	7	15	9	0	0
115	⏑–⏑⏑–––‖	9	10	8	7	19	11	7	3	7	8	7	3	3
116	––⏑⏑–––‖	14	11	11	15	30	16	3	4	3	9	11	0	6
117	⏑⏑–⏑–––‖	9	8	10	5	14	4	5	1	7	10	5	1	5
118	–⏑–⏑–––‖	12	10	6	16	12	8	14	5	2	7	10	1	1
119	⏑––⏑–––‖	20	14	12	10	18	12	9	8	8	12	9	4	3
120	–––⏑–––‖	19	21	16	20	15	15	7	4	10	21	10	4	9
121	⏑⏑⏑––––‖	9	12	5	10	1	1	5	7	6	18	6	0	3
122	–⏑⏑––––‖	5	12	10	12	16	18	7	4	2	14	8	0	1
123	⏑–⏑––––‖	7	11	8	13	13	16	8	3	4	8	6	1	2
124	––⏑––––‖	17	13	16	18	19	15	13	5	4	13	8	2	6
125	⏑⏑–––––‖	12	13	12	16	11	6	1	8	6	12	11	0	5
126	–⏑––––––‖	5	14	9	22	10	17	6	11	4	16	13	2	4
127	⏑–––––––‖	17	17	7	27	11	15	8	9	4	21	7	2	9
128	––––––––‖	28	12	23	49	9	14	3	3	3	31	5	1	5

THRASYMACHUS.

The few fragments wich have come down to us, do not enable us to draw certain conclusions with regard to his preference for any forms. Only the form —⏑—⏓ shows a high frequency which may not be due altogether to chance. On 12 sentence-endings we find 427 of this of form. These 12 sentence-endings are the following.

⏑⏑⏑⏑— *ζητοῦσιν ἑκάτεροι.*
⏑——⏑⏑ *ἀνάγκη δὲ λέγειν.*
————⏑ *ὑποσχήσει τὰς αἰτίας.*
—⏑⏑—⏓ *πρὸς ἀλλήλους ἀφικέσθαι.*

—⏑—⏓ *ἐσωφρονοῦμεν.*
—⏑—⏓ *τοιοῦτον ἔσται;*
—⏑—⏓ *λόγῳ ἐνόντα.*
—⏑—⏓ *οὖσα πᾶσιν.*
—⏑—⏓ *πυνθάνεσθαὶ.*

———⏓ *φιλονικοῦντας πάσχειν.*
———⏓ *σωφρονίζειν εἴωθεν.*

Among the kola we may note: *τοῖς νεωτέροισι* —⏑—⏓, and *πόλεως ἀκούειν* —⏑—⏓.

THUCYDIDES.

Clausula of some of the more rhetoric parts of his work: I, 140—144; II, 35—46.

1		33	1	65		97	
2		34	1	66		98	
3		35		67		99	1
4		36		68	1	100	1
5		37	1	69		101	5
6		38	1	70		102	2
7		39		71	1	103	
8	2	40	1	72	1	104	5
9	2	41		73	1	105	
10	1	42	1	74	1	106	1
11	1	43		75	2	107	1
12		44		76	1	108	2
13		45		77		109	3
14	1	46		78	3	110	1
15		47		79	2	111	2
16	2	48	1	80	5	112	2
17	1	49		81		113	1
18		50	1	82		114	1
19		51	1	83	1	115	2
20		52	1	84	2	116	1
21		53		85	2	117	
22		54	3	86	2	118	
23	1	55		87	1	119	2
24	1	56	2	88	2	120	2
25	1	57		89	1	121	2
26		58		90		122	2
27		59		91	1	123	
28		60		92	2	124	
29	1	61		93	2	125	3
30	3	62	2	94	1	126	2
31		63		95	2	127	4
32	2	64	2	96	2	128	5

THUCYDIDES.

Comparison of his clausula with his sentence-metre.

Number of the form.	Form.	Sentenc-metre.	Clausula-metre.	Clausula of the more rhetoric parts.	
Sum total of cases in vestigated		1000	2000	130	
17–18	⏑⏑—⏑⏑≍	0·5 %	0·5		
81–96	—⏑—≍	14·4	14·2	16·2	
21–24	—⏑—⏑⏑≍	1·8	2·0		
1–8	⏑⏑⏑⏑≍	2·0	3·3		
9–16	—⏑⏑⏑≍	3·6	5·2	5·4	
35–36	—⏑⏑⏑—⏑≍	1·1	1·3		
69–72	—⏑⏑⏑—≍	2·7	3·5		
37–40	—⏑⏑—⏑≍	2·9	2·1		
105–112	—⏑——≍	8·8	9·4	9·2	
53–56	—⏑——⏑≍	3·0	2·6	1·8	
41–48	—⏑—⏑≍	5·1	3·7		
97–100	⏑⏑⏑——≍	2·5	3·1		
57–60	⏑———⏑≍	4·0	2·9		
61–64	————⏑≍	5·4	3·4		
57–64	———⏑≍	9·4	6·3		
73–80	—⏑⏑—≍	6·5	7·9	11·5	—⏑⏑—≍
113–120	⏑———≍	10·3	8·5		
121–128	————≍	10·0	9·7		
113–128	——≍	20·4	18·3	20·8	
101–104	—⏑⏑——≍	2·6	6·1	9·2	- ⏑⏑——≍
91–92	—⏑—⏑—≍	2·3	2·3		
51–52	—⏑⏑——⏑≍	1·5	1·1		

The great majority of the forms which as regarded by Röllman as being favoured in Thucydides are avoided in Greek prose, e.g. —⏑—, —⏑—⏑—, —⏑⏑——⏑—,

—⏑⏑——⏑⏑—, etc. They comprise nearly: 33—64, 17—32, 101—104. The forms —⏑⏒ comprise in Thucydides' sentence-metre 23·8 %, in his clausula 18·4 %, in the clausula of the more rhetoric parts 14·6 %. So, if any forms have been favoured by him in the speeches (—⏑⏑⏑⏒? —⏑⏑—⏒? and others), the statements of Röllmann seem to be wholly false.

DEMOSTHENES.

Comparison of his clausula with his sentence-metre.

Number of the form.	Form.	Sentence-metre.	Clausula-metre.	Favoured forms.
17—18	⏑⏑⏑—⏑⏑⏑	0·1 %	0·2	
81—96	—⏑—⏑	12·4	18·9	—⏑—⏑
21—24	—⏑—⏑⏑⏑	3·1	3·1	
1—8	⏑⏑⏑⏑—	0·5	0·7	
9—16	—⏑⏑⏑—	1·2	0·6	
35—36	—⏑⏑⏑—⏑⏑	0·4	0·8	—⏑⏑⏑—⏑⏑
69—72	—⏑⏑⏑—⏑	1·1	1·2	
37—40	—⏑⏑—⏑⏑	4·4	3·6	
105—112	—⏑——⏑	8·0	8·0	
53—56	—⏑——⏑—	4·1	4·0	
41—48	—⏑—⏑—	6·7	4·8	
97—100	⏑⏑⏑——⏑	0·1	0·8	⏑⏑⏑——⏑
57—60	⏑———⏑⏑	3·9	2·9	
61—64	————⏑⏑	4·6	4·8	
57—64	———⏑⏑	8·5	7·7	
73—80	—⏑⏑—⏑	12·7	11·7	
113—120	⏑—————	10·9	7·7	
121—128	—————	9·0	11·2	
113—128	————	19·9	18·7	
101—104	—⏑⏑——⏑	7·2	3·7	
91—92	—⏑—⏑—⏑	1·8	3·0	
51—52	—⏑⏑——⏑⏑	1·7	3·1	

Comparison of the sentence-metre of Thucydides and Demosthenes in order to determine metrical tendencies in Demosthenes. Attention should be paid to the fact that the results could not have been obtained by means of the method of Marbe.

⏑⏑⏑, ⏑⏑⏑⏑, ⏑⏑⏑⏑⏑, ⏑⏑⏑⏑⏑⏑, etc. are avoided.

Form.	Number of the form.	Thuc. %	Dem. %	Prefered or avoided. (+) (—)		Thuc.	Dem.	
⏑⏑⏑⏑⏑⏑⏑⏑	1	0·0	0·0		⏑⏑⏑⏑⏑⏑⏑	0·0	0·0	
⏑⏑⏑⏑⏑⏑—⏑	65	0·2	0·0	—	⏑⏑⏑⏑⏑	0·2	0·0	—
⏑⏑⏑⏑⏑—⏑⏑	33	0·1	0·0	—	⏑⏑⏑⏑	0·3	0·0	—
⏑⏑⏑⏑⏑——⏑	97	0·2	0·0	—				
⏑⏑⏑⏑—⏑⏑⏑	17	0·3	0·0	—				
⏑⏑⏑⏑—⏑—⏑	81	0·4	0·0	—	⏑⏑⏑	0·8	0·0	—
⏑⏑⏑⏑——⏑⏑	49	0·0	0·0	—				
⏑⏑⏑⏑———⏑	113	1·1	0·0	—				
⏑⏑⏑—⏑⏑⏑⏑	9	0·1	0·1	—				
⏑⏑⏑—⏑⏑—⏑	73	0·4	0·0	—				
⏑⏑⏑—⏑—⏑⏑	41	0·6	0·0	—				
⏑⏑⏑—⏑——⏑	105	1·1	0·1	—	⏑⏑	5·3	0·5	—
⏑⏑⏑——⏑⏑⏑	25	0·4	0·0	—				
⏑⏑⏑——⏑—⏑	89	0·7	0·0	—				
⏑⏑⏑———⏑⏑	57	1·1	0·2	—				
⏑⏑⏑————⏑	121	0·9	0·1	—				
—⏑⏑⏑⏑⏑—⏑	66	0·4	0·1	—		0·4	0·1	—
—⏑⏑⏑⏑——⏑	98	0·6	0·0	—		1·7	0·1	—
——⏑⏑⏑⏑—⏑	68	1·1	0.1	—				
—⏑⏑⏑———⏑	114	0·9	0·1	—				
——⏑⏑⏑——⏑	100	1·1	0·0	—		3·3	0·5	—
———⏑⏑⏑⏑⏑	72	1·3	0·4	—				

Dactyls and choriambs.		Thuc. %	Dem. %		—◡◡(≍) is favoured.		
—◡◡—————≍	122	0·5	1·6	+			
——◡◡———≍	116	1·4	3·0	+			
———◡◡——≍	104	0·6	1·9	+			
————◡◡—≍	80	1·6	1·7	+			
◡—◡◡—◡◡≍	19	0·6	0·7	+	7·3	15·5	+
—◡◡—◡◡—≍	74	0·7	2·9	+			
◡◡—◡◡—◡≍	37	0·6	0·6				
—◡◡——◡◡≍	26	0·6	0·9	+			
◡◡——◡◡—≍	77	0·7	2·2	+			

Reiteration of iambs and trochees is avoided.

		Thuc.	Dem.	
—◡—◡—◡—≍	118	0·7	0·2	(—)
◡◡—◡—◡—≍	85	0·7	0·4	(—)
◡—◡—◡—◡≍	43	0·4	0·3	(—)

Reiteration of cretics is favoured.

		Thuc.	Dem.	
——◡—◡—≍	56	1·1	1·3	(+)
—◡—◡—◡—≍	110	0·7	1·4	(+)
◡——◡—◡—≍	55	1·0	1·2	(+)

Combinations of cretics and trochees, item of iambs ands trochees, are avoided.

		Thuc.	Dem.	
◡—◡——◡—≍	91	0·7	1·0	(—)
—◡———◡—≍	94	0·4	1·0	(—)
——◡——◡—≍	92	1·6	0·8	(—)
———◡—◡≍	112	1·9	1·5	(—)
◡—◡—◡———≍	107	1·3	0·7	(—)
——◡—◡——≍	108	1·0	0·8	(—)

The form —⏑⏑—⏑̲ in the sentence is favoured of course.

		Thuc.	Dem.	Quotient	
⏑⏑—⏑⏑—⏑̲	73	0·4	0·0	∞	(—)
—⏑⏑—⏑⏑—⏑̲	74	0·7	2·9	4·1	(+)
⏑—⏑—⏑⏑—⏑̲	75	0·5	0·8	1·6	(+)
——⏑—⏑⏑—⏑̲	76	0·9	1·8	2·0	(+)
⏑⏑—⏑—⏑⏑—⏑̲	77	0·7	2·2	3·1	(+)
—⏑——⏑⏑—⏑̲	78	0·7	1·7	2·4	(+)
⏑———⏑⏑—⏑̲	79	1·0	1·6	1·6	(+)
———⏑⏑—⏑̲	80	1·6	1·7	1·1	(+)

The highest quotients, of course, are those for the forms —⏑⏑—⏑⏑—⏑̲ and ⏑⏑——⏑⏑⏑̲; the lowest quotient that for ⏑⏑⏑—⏑⏑⏑—⏑̲.

Tendency of increasing avoidance (see p. 30).

	Thuc.	Dem.		Thuc.	Dem.	Quotient.
————⏑⏑⏑⏑̲	16	0·7	0·2			
————⏑⏑—⏑̲	80	1·6	1·7	—————	5·5	4·5	1·2 (+)
————⏑—⏑⏑̲	48	1·3	1·1			
————⏑——⏑̲	112	1·9	1·5			
————⏑⏑⏑̲	32	1·5	0·5	—————	1·9	2·1	1·1 (+)
————⏑—⏑—⏑̲	96	1·4	1·6			
————⏑⏑⏑⏑̲	64	2·6	0·7	———————	2·6	1·7	1·5 (—)
—⏑⏑⏑⏑⏑⏑⏑̲	128	2.8	0·9	———————	2.8	0·9	3·1 (—)

For ⏑⏑⏑, ⏑⏑⏑⏑, ⏑⏑⏑⏑⏑, etc. see page 176.

ISOCRATES.

Comparison of the frequency of the clausula of Isocrates with that of Thucydides. The short penult seems to have been avoided by Isocrates. Favoured is every form with long penult: ⏑⏑⏑—⏑, —⏑⏑—⏑, —⏑—⏑, ⏑⏑⏑——⏑, —⏑——⏑, ————, except —⏑⏑——⏑.

		Thucydides. Clausula. (sum total 2000 cases).	Isocrates (Panegyricus). Clausula. (sum total 338 cases).	Quotient.	
1–8	⏑⏑⏑⏑⏓	3·3 %	0·6	5·5	(—)
9–16	—⏑⏑⏑⏓	5·2	4·5	1·2	(—)
17–18	⏑⏑⏑—⏑⏑⏓	0·5	0·0	∞	(—)
19–20	—⏑⏑—⏑⏑⏓	1·4	1·2	1·2	(—)
21–24	—⏑—⏑⏑⏓	2·0	1·2	1·7	(—)
25–32	——⏑⏑⏓	5·0	3·9	1·3	(—)
33–34	⏑⏑⏑⏑—⏑⏓	0·8	0·3	2·7	(—)
35–36	—⏑⏑⏑—⏑⏓	1·3	0·9	1·4	(—)
37–40	—⏑⏑—⏑⏓	2·1	0·9	2·3	(—)
41–48	—⏑—⏑⏓	3·7	1·5	1·5	(—)
49–52	⏑⏑——⏑⏓	1·6	0·6	2·7	(—)
53–56	—⏑——⏑⏓	2·6	1·8	1·4	(—)
57–60	⏑———⏑⏓	2·9	1·2	2·4	(—)
61–64	————⏑⏓	3·4	3·3	1·0	(—)
65–68	⏑⏑⏑⏑—⏓	2·3	3·9	1·7	(+)
69–72	—⏑⏑⏑—⏓	3·5	6·0	1·7	(+)
73–80	—⏑⏑—⏓	7·9	11·3	1·4	(+)
81–96	—⏑—⏓	14·2	17·0	1·2	(+)
97–100	⏑⏑⏑——⏓	3·1	3·3	1·1	(+)
101–104	—⏑⏑——⏓	6·1	5·1	1·2	(—)
105–112	—⏑——⏓	9·4	12·5	1·3	(+)
113–128	———⏓	18·3	18·5	1·0	(+)

Only a comparison with Isocrates' sentence-metre can give a certain clue to his clausula-metre.

PLATO. LAWS.

Comparison of the clausula with the sentence-metre. The figures for the clausula have been derived from Kaluscha.

Number of the form.	Form.	Thucydides. Sentence-metre.	Sentense-metre.		Clausula-metre.		Favoured forms.	Avoided forms.
1–8	⏑⏑⏑⏑⏓		3.8 %	6·2	1·6	(+)	⏑⏑⏑⏑⏓	
9–16	—⏑⏑⏑⏓	3·6	6·8	12·6	1·9	(+)	—⏑⏑⏑⏓	
17–24	⏑—⏑⏑⏓		3·9	3·0	1·3	(—)		⏑—⏑⏑⏓
25–32	——⏑⏑⏓		7·0	3·7	1·9	(—)		——⏑⏑⏓
33–40	⏑⏑—⏑⏓		4·2	5·7	1·4	(+)	⏑⏑—⏑⏓	
41–48	—⏑—⏑⏓	5·1	3·7	4·2	1·1	(+)	—⏑—⏑⏓	
49–56	⏑——⏑⏓		5·4	11·6	2·1	(+)	⏑——⏑⏓	
57–64	———⏑⏓		7.9	13·0	1·6	(+)	———⏑⏓	
65–72	⏑⏑⏑—⏓		6·0	8·7	1·5	(+)	⏑⏑⏑—⏓	
73–80	—⏑⏑—⏓	6·5	5·2	1·3	4·0	(—)		—⏑⏑—⏓
81–88	⏑—⏑—⏓		3·9	2·2	1·8	(—)		
89–96	——⏑—⏓		7·0	3·5	2·0	(—)		—⏑—⏓
97–104	⏑⏑——⏓		6·4	4·4	1·5	(—)		——⏓
105–112	—⏑——⏓	8·8	7.5	6·0	1·0	(—)		—⏑——⏓
113–120	⏑———⏓		9·0	6·0	1·5	(—)		———⏓
121–128	————⏓	10·0	13·3	8·2	1·6	(—)		————⏓

PLATO. LAWS.

Investigation into the quantity of the last syllable.

		Sentence-metre.			Clausula-metre.		
		A. Frequency of the form with short final syllable.	B. Frequency of the form with long final syllable.	Quotient.	C. Frequency of the form with short final syllable.	D. Frequency of the form with long final syllable.	Quotient.
1–8	⏑⏑⏑⏑⏒	1·4 %	1·9	+	2·4	3·8	+
9–16	—⏑⏑⏑⏒	2·2	4·1	+	3·8	8·8	+
17–24	⏑—⏑⏑⏒	**2·5**	**1·7 !**	—	**1·9**	**1·1**	—
25–32	——⏑⏑⏒	**3·6**	**3·1 !**	—	**2·7**	**1·0**	—
33–40	⏑⏑—⏑⏒	2·3	2·3		2·7	3·0	+
41–48	—⏑—⏑⏒	1·8	2·1	+	1·8	2·4	+
49–56	⏑——⏑⏒	2·7	2·9	+	3·4	8·2	++
57–64	———⏑⏒	4·1	4·0	?	4·2	8·8	++
65–72	⏑⏑⏑—⏒	2·6	3·8	+	3·0	5·7	+
73–80	—⏑⏑—⏒	1·7	3·0	+	0·6	0·7	+
81–88	⏑—⏑—⏒	1·5	2·8	+	1·0	1·2	+
89–96	——⏑—⏒	2·2	4·6	+	1·4	2·1	+
97–104	⏑⏑——⏒	2·4	4·2	+	1·5	2·9	+
105–112	—⏑——⏒	3·3	4·0	+	2·3	3·7	+
113–120	⏑———⏒	2·7	5·4	+	1·9	4·1	+
121–128	———— ⏒	5·1	7·8	+	3·0	5·2	+

PLATO.

Investigation into the quantity of the last syllable. Quotients resulting from a comparison of columns A and C (= table E), denoting ergo the preference shown for the clausulae with short final syllable, and from a comparison of columns B and D (= table F), denoting the same for the forms with long final syllable. It appears that some clausulae are favoured in a higher degree when ending in a long than in a short final syllable.

		E	F				
		⏑	—				
1–8	⏑⏑⏑⏑≚	1·7 (+)	2·0 (+)	Preference for	⏑⏑⏑⏑—	over	⏑⏑⏑⏑⏑
9–16	—⏑⏑⏑≚	1·7 (+)	2·1 (+)	„	„ —⏑⏑⏑—	„	—⏑⏑⏑⏑
17–24	⏑—⏑⏑≚	1·3 (—)	1·7 (—)				
25–32	——⏑⏑≚	1·3 (—)	3·1 (—)	„	„ —⏑⏑⏑	„	—⏑⏑—
33–40	⏑⏑—⏑≚	1·2 (+)	1·3 (+)				
41–48	—⏑—⏑≚	1·0	1·1 (+)				
49–56	⏑——⏑≚	1·3 (+)	2·8 (+)	„	„ ⏑——⏑—	„	⏑——⏑⏑
57–64	———⏑≚	1·0 (+)	2·2 (+)	„	„ ———⏑—	„	———⏑⏑
65–72	⏑⏑⏑—≚	1·2 (+)	1·5 (+)				
73–80	—⏑⏑—≚	1·8 (—)	4·3 (—)	„	„ —⏑⏑—⏑	„	—⏑⏑——?
81–88	⏑—⏑—≚	1·5 (—)	2.3 (—)				
89–96	——⏑—≚	1·5 (—)	2·2 (—)	„	„ —⏑—⏑	„	—⏑——
97–104	⏑⏑——≚	1·7 (—)	1·4 (—)				
105–112	—⏑——≚	1·4 (—)	1·1 (—)				
113–120	⏑———≚	1·4 (—)	1·3 (—)				
121–128	————≚	1·7 (—)	1·5 (—)				

PLATO.

Some of the criteria the occurrence of which makes it probable that a dialogue belongs to the second chronological group, which comprises the Republic, the Theaetetus, and perhaps the Phaedrus. R indicates the occurrence in the Republic, Ph in the Phaedrus, T in the Theaetetus. See Barwick's tables.

(Barwick, table on page 56/7).

	T	Ph	R
1. *ὀεθῶς, ὀρθότατα, ὀρθότατα λέγεις* and *ἀληθέστατα*	T	Ph	R
2. *ὑπέλαβες* in answers	T		R
3. *παντάπασι μὲν οὖν* (—⏑—⏑⏑—)	T	Ph	R

4.	*ἀναγκαίως, ἀναγκαιότατα,* etc.			R
5.	*δῆλον*	T	Ph	R
6.	*ἐμοὶ γοῦν δοκεῖ*	T		R
7.	*γὰρ οὖν* in short answer	T		R
8.	*οὐκοῦν* or *ἀλλὰ χρή*	T		R
9.	*καὶ πῶς;*	T		R
10.	*καὶ πῶς ἄν;*	T		R
11.	*τί μήν;*	T	Ph	R
12.	*ἦ πῶς;*			R
13.	*— ἦ πῶς;*			R
14.	*πῇ;*			R
(Barwick, table on page 59).				
15.	*πῶς γάρ;*	T		R
16.	*πῶς γὰρ ἄν;*			R
17.	*πῶς δ'οὐ μέλλει;*			R
18.	*καὶ πῶς;*			R
19.	*καὶ πῶς ἄν;*	T		R
20.	*τί δ'οὔ;*	T	Ph	R
21.	*τί γὰρ οὔ;*			R
22.	*τί γάρ;*	T	Ph	R
23.	*ἀλλὰ τί μέλλει;*			R
24.	*ἀλλὰ τί μήν;*			R
(Barwick, table on page 62/3).				
25.	frequent *δῆλον ὡς (: δῆλον ὅτι)*	T	Ph	R
26.	*μακρῷ* or *μυρίῳ*	T		R
27.	Ionic datives		Ph	R

28. *εἴρηται* ('in zurückverweisenden Relativsätzen) T Ph
29. *ἐρρήθη* (item) T R
30. *καθάπερ (: ὥσπερ)* T Ph R
31. *ὄντως (: τῷ ὄντι)* T Ph R

PLUTARCH.

Comparison of his clausula with his sentence-metre.

Number of the form.	Form.	Sentence-metre.	Clausula-metre.	Quotient.	Favoured forms.
17–18	⏑⏑⏑—⏑⏑⏓	1·10 %	1·10	1·0	
81–96	—⏑—⏓	13·90	29·10	2·1 (+)	—⏑—⏑
21–24	—⏑—⏑⏑⏓	3·70	3·85	1·0 (+)	—⏑—⏑⏑⏑ ?
1–8	⏑⏑⏑⏑⏓	2·00	3·05	1·6 (+)	⏑⏑⏑⏑—
9–16	—⏑⏑⏑⏓	6·10	9·95	1·6 (+)	—⏑⏑⏑—
35–36	—⏑⏑⏑—⏑⏓	2·10	1·70	1·2 (—)	
69–72	—⏑⏑⏑—⏓	5·80	4·70	1·2 (—)	
37–40	—⏑⏑—⏑⏓	4·10	2·60	1·6 (—)	
105–112	—⏑——⏓	6·50	9·80	1·5 (+)	—⏑——⏑
53–56	—⏑——⏑⏓	4·00	2·35	1·7 (—)	
41–48	—⏑—⏑⏓	7·20	3·30	2·2 (—)	
97–100	⏑⏑⏑——⏓	2·50	2·40	1·0 (—)	
57–60	⏑— ——⏑⏓	3·60	2·05	1·8 (—)	
61–64	———⏑⏓	3·20	2·25	1·4 (—)	
57–64	———⏑⏓	6·80	4·30	1·6 (—)	
73–80	—⏑⏑—⏓	5·10	4·70	1·1 (—)	
113–120	⏑———⏓	6·30	3·60	1·8 (—)	
121–128	———⏓	5·10	4·20	1·2 (—)	
113–128	——⏓	11·40	7·80	1·5 (—)	
101–104	—⏑⏑——⏓	3·90	2·45	1·6 (—)	
91–92	—⏑——⏑—⏓	1·40	4·05	2·9 (+)	—⏑——⏑—⏑
51–52	—⏑⏑——⏑⏓	2·40	0·85	2·8 (—)	

Syncrises. (246 cases).	%		Lives % (sentence).	(Clausula).	Syncrises % (clausula).
1—4	2				
5—8	2				
9—16	9				
17—18	0				
19—20	0	—⏑—⏑̲	13·9	29·10	2·70
21—24	3	—⏑⏑⏑⏑̲	6·1	9·95	9·0
25—34	8	—⏑——⏑̲	6·5	9·80	9·0
35—36	1				
37—40	2				
41—48	2				
49—52	2				
53—56	4				
57—64	2				
65—68	1				
69—72	6				
73—80	5				
81—96	27				
97—100	3				
101—104	2				
105—112	9				
113—120	4				
121—128	4				

PHILO.

Comparison of his clausula with his sentence-metre.

Number of the form.	Form.	Sentence-metre.	Clausula-metre.	Quotient.		Favoured forms.	Avoided forms.
17—18	⏑⏑⏑—⏑⏑⏓	0·4 %	2·0	5·0	(+)	⏑⏑⏑—⏑⏑⏓	
81—96	—⏑—⏓	12·7	18·0	1·4	(+)	—⏑—⏓	
21—24	—⏑—⏑⏑⏓	2·3	2·8	1·2	(+)	—⏑—⏑⏑⏓	
1—8	⏑⏑⏑⏑⏓	3·0	1·0	3·0	(−)		⏑⏑⏑⏑⏓
9—16	—⏑⏑⏑⏓	5·9	9·8	1·7	(+)	—⏑⏑⏑⏓	
35—36	—⏑⏑⏑—⏑⏓	2·3	0·6	3·8	(+)		
69—72	—⏑⏑⏑—⏓	3·2	6·2	1·9	(+)	—⏑⏑⏑—⏓	
37—40	—⏑⏑—⏑⏓	3·1	6·2	2·0	(+)	—⏑⏑—⏑⏓	
105—112	—⏑——⏓	9·8	16·0	1·6	(+)	—⏑——⏓	
53—56	—⏑——⏑⏓	4·0	4·6	1·2	(+)	—⏑——⏑⏓	
41—48	—⏑—⏑⏓	6·4	1·4	4·6	(−)		—⏑—⏑⏓
97—100	⏑⏑⏑——⏓	2·8	4·6	1·6	(+)	⏑⏑⏑——⏓	
57—60	⏑———⏑⏓	2·8	3·6	1·3	(+)		
61—64	————⏑⏓	4·8	5·4	1·1	(+)		
57—64	———⏑⏓	7·6	9·0	1·2	(+)		
73—80	—⏑⏑—⏓	6·4	2·0	3·2	(−)		—⏑⏑—⏓
113—120	⏑———⏓	6·5	3·0	2·2	(−)		
121—128	———⏓	6·4	1·6	4·0	(−)		
113—128	——⏓	12·0	4·6	2·8	(−)		——⏓
101—104	—⏑⏑——⏓	4·2	1·6	2·6	(−)		—⏑⏑——⏓
91—92	—⏑——⏑—⏓	2·0	3·0	1·5	(+)	—⏑——⏑—⏓	
51—52	—⏑⏑——⏑⏓	1·7	1·8	1·1	(+)		

M

Sum tota vestiga	
1—16	
9—16	
37—40	
81—96	
105—112	
97—100	
65—72	
21—24	
17—18	
53—56	
61—64	
117—120	
35—36	
91—92	
123—124	
73—80	
113—128	
121—128	
125—128	
127—128	
41—48	
101—104	
51—52	

*)
**)

IN THE
UNIVERSITY OF ILLINOIS

METRE AS A DISTINGUISHING CHARACTERISTIC OF GREEK PROSE-WRITERS.

		Sentence-metre (%).						Clausula (%).										
		Thucydides.	Xenophon.	Demosthenes.	Plato. Laws.	Plutarch.	Philo.	Thucydides.	Demosthenes.	Plutarch.	Plato. Republ.	Plato. Laws.	Philo.	Isocrates.	Chariton.	Libanius.	Flavius Josephus*)	Polemo **)
Sum total of cases investigated:		1000	1000	1000	1000	1000	1000	2000	898	2000	3778	3781	500	338	866	1646		
1—16	⏑ – ⏑ – ⏓	5·6	5·4	**1·7**	10·6	8·1	8.9	8·5	2·6	**13·0**	9.2	**18·8**	10·8	5·0	12·9		**14·3**	
9—16	– ⏑ – ⏑ – ⏓	3·6	4·0	**1·2**	6·8	6·1	5.9	5·2	0·6	10·0	6·2	**12·6**	9·8	4·5				
37—40	– ⏑ ⏑ – ⏑ – ⏓	2·9	2·0	4·4	1·9	4·1	3·1	2·1	3·6	2·6			**6·2**	0·9	**5·9**	4·1	4·8	**11·6**
81—96	– ⏑ – ⏓	14·4	12·8	12·4	10·9	13·9	12·7	14·2	**18·9**	**29·1**	**13·9**	5·7	18·1	17·0	**21·3**	16·1	16·2	
105—112	– ⏑ – – ⏓	8·8	7·8	8·0	7·5	6·5	9.8	9·4	8·0	**9·8**	6·1	6·0	**16·0**	**12·5**	**17·6**	7·6	10·0	
97—100	⏑ ⏑ – ⏑ – – ⏓	2·5	2·4	**0·1**	3·8	2·5	2·8	3·1	0·8	2.4			4·6	3·3				
65—72	– ⏑ ⏑ – ⏑ – ⏓	2·7	3·1	1·1	4·0	5·8	3·2	3·5	1·2	4·7			6·2	6·0				
21—24	– ⏑ – ⏑ ⏑ – ⏓	1·8	1·7	3·1	2·0	3·7	2·3	2·0	3·1	3·9			2·8	1·2				
17—18	⏑ ⏑ ⏑ – ⏑ ⏑ – ⏓	0·5	0·8	**0·1**	1·0	1·1	0·4	0·5	0·2	1·1			2·0	0·0				
53—56	– ⏑ – – ⏑ – ⏓	3·0	2·6	4·1	3·1	4·0	4·0	2·6	4·0	2·4			4·6	1·8	**7·2**	5·8	5·6	
61—64	– – – – ⏑ – ⏓	5·4	5·1	4·6	5·4	3·2	4·8	3·4	4·8	2·3			5·4	3·3	4·1			
117—120	– ⏑ – – – ⏓	6·0	5·1	5·9	5·0	3·5	3·4	4·9	4·3	2·0			2·0					
35—36	– ⏑ ⏑ ⏑ – ⏑ – ⏓	1·1	1·4	**0·4**	1·3	2·1	2·3	1·3	0·8	1·6			0·6	0·9				
91—92	– ⏑ – – ⏑ – – ⏓	2·3	1·4	1·8	2·0	1·4	2·0	2 3	3·0	4·1			3·0					
123—124	– ⏑ – – – – – ⏓	2·4	3·1	3·2	2·1	2·1	1·4	2·4	3·3	0·8			0·6					
73—80	– ⏑ ⏑ – ⏓	6·5	5·6	12·7	5·2	5·1	6·4	7·9	11·7	4·7	7·0	**1·3**	**2·0**	11·3	**2·0**	7·7	1·5	
113—128	– – – ⏓	20·4	25·8	19·9	22·3	**6·3**	**12·9**	18 3	18·7	**7·8**	12·0	14·2	**4·6**	18·5	**3·0**		6·3	
121—128	– – – – ⏓	10·0	16·7	**9·0**	13·3	**5·1**	**6·4**	9·7	11·2	4·2	6·2	8·2	**1.6**		**0·1**			
125—128	– – – – – ⏓	6·2	11·4	**4·1**	8·0	**3·2**	**3·6**	5·4	5·8	2·5			**1·0**					
127—128	– – – – – – ⏓	4·5	7·6	**2·0**	5·2	**1·1**	**1·2**	3·0	3·2	1·0			**0·6**					
41—48	– ⏑ – ⏑ ⏓	5·1	5·1	6·7	3·7	7·2	6·4	3·7	4·8	3·3	8·5	4·2	1·4	1·5	3·2	5·5	2·6	
101—104	– ⏑ ⏑ – – ⏑	2·6	3·7	7·2	2·6	3·9	4·2	**6·1**	3·7	2·5			1·6	5·1				
51—52	– ⏑ ⏑ – – ⏑ ⏑	1·5	1·5	1·7	1·2	2·4	1·7	1.1	3·1	0·9			1·8					

*) Figures derived from Heibges, for Bell. Jud. and Antiquit.
**) Figures derived from Heibges.

TABLE OF CLAUSULA WHICH HAVE BEEN FAVOURED (OR AVOIDED) BY DIFFERENT AUTHORS.

	Favoured.	Avoided.
(1) Thrasymachus.	– ⏑ – ⏓	
(2) Thucydides.	– ⏑ ⏑ – – ⏓ – ⏑ ⏑ – ⏓ ⏑ ⏑ ⏑ ⏓	
(3) Plato (Laws).	⏑ ⏑ ⏑ ⏓ – ⏑ ⏑ – ⏑ ⏓ – ⏑ – – ⏑ ⏓ – – – – ⏑ ⏓ ⏑ ⏑ ⏑ – ⏓	– ⏑ ⏑ ⏓ – ⏑ ⏑ – ⏓ – ⏑ – ⏓ · · · – – ⏓ (– ⏑ – – ⏓, etc.)
(4) Isocrates.	· · · – ⏓	· · · ⏑ ⏓
(5) Demosthenes.	– ⏑ – ⏓	
(6) Philo.	⏑ ⏑ ⏑ – ⏑ ⏑ ⏓ – ⏑ – ⏓ – ⏑ – ⏑ ⏑ ⏓ – ⏑ ⏑ ⏑ ⏓ – ⏑ – ⏑ ⏑ ⏓ – ⏑ ⏑ ⏑ ⏓ – ⏑ ⏑ – ⏓ – ⏑ – – ⏓ – ⏑ – ⏑ ⏓ ⏑ ⏑ ⏑ – ⏓	⏑ ⏑ ⏑ ⏑ ⏓ – ⏑ – ⏑ ⏓ – ⏑ ⏑ – ⏓ – – – ⏓ – ⏑ ⏑ – – ⏓
(7) Flavius Josephus.	– ⏑ ⏑ – ⏑ ⏓ – ⏑ – – ⏓	– ⏑ ⏑ – ⏓ – – – ⏓ – – – ⏓
(8) Charito.	⏑ ⏑ ⏑ ⏓ – ⏑ ⏑ – ⏑ ⏓ – ⏑ – – ⏓ – ⏑ – – ⏑ ⏓ – ⏑ – ⏓	– ⏑ ⏑ – ⏓
(9) Plutarch.	– ⏑ – ⏓ ⏑ ⏑ ⏑ ⏓ – ⏑ – – ⏓ – ⏑ – ⏑ – ⏓	– ⏑ ⏑ – ⏑ ⏓ – – – ⏑ ⏓ – – – ⏓ – ⏑ – ⏑ ⏓
(10) Polemo.	– ⏑ ⏑ – ⏑	– ⏑ ⏑ – – ⏓

TYPOLOGY OF THE GREEK CLAUSULA.

Only a few features of typology in their main outline with the help of little material have been studied. The following tables intend to illustrate my hypothesis that in Greek prose metre is more important than those rhythmical factors which we are accustomed to include under the idea typology. The results seem to corroborate this hypothesis. For it can be said that within the metrical groups taken into consideration here, viz. —⏑⏑⏓, —⏑⏑⏑⏓, —⏑——⏓, the proportions of the typological subdivisions, e.g.:

—⏑⏑⏑⏓
—⏑⏑⏑,⏓
—⏑⏑,⏑⏓
—⏑,⏑⏑⏓
—,⏑⏑⏑⏓
,—⏑⏑⏑⏓
. . . —⏑⏑⏑⏓

are nearly the same. Though it may be that the appearing differences point to some underlying tendencies, the main rule holds good that it is desirable to study first the metrical structure of the sentence, assuming as an hypothesis that the metrical groups are really rhythmical unities in themselves, and after that to take the typology into account. I intend to come back to these problems.

FORM —⏑—⏑⏓.

Form of the last word:	Thucydides.	%	Demosthenes.	%	Philo.	%	Plutarch.	%
⏓	2	2·6	3	1·6	0	0·0	6	0·0
—⏓	15	19·8	53	27·6	12	20·0	10	12·2
⏑—⏓	43	56·6	117	60·9	23	38·3	47	57·3
—⏑—⏓	10	13·1	16	8·3	21	35·0	15	18·3
. . . —⏑—⏓	6	7·9	3	1·6	4	6·7	10	12·2
	76	100·0	192	100·0	60	100·0	82	100·0

A word ends: (,)	Thucydides.	%	Demosthenes.	%	Philo.	%	Plutarch.	%
⏑–⏑–,⏑	2	1·9	3	1·2	0	0·0	0	0·0
⏑–⏑,–⏑	15	14·2	53	21·5	12	15·8	10	9·0
⏑–,⏑–⏑	50	47·2	130	52·9	26	34·2	54	48·7
⏑,–⏑–⏑	33	31·1	57	23·2	34	44·7	37	33·3
⏑–⏑–⏑	6	5·7	2	1·2	4	5·3	10	9·0
	106	100·0	245	100·0	76	100·0	111	100·0

FORM –⏑⏑–⏑.

Form of the last word:	Thucydides.	%	Demosthenes.	%	Philo.	%	Plutarch.	%
⏑	0	0·0	1	4·2	0	0·0	0	0·0
–⏑	1	4·2	0	0·0	4	8·9	0	0·0
–⏑⏑	4	16·7	3	12·5	5	11·1	4	12·1
–⏑⏑⏑	17	70·8	18	75·0	27	60·0	25	75·8
⏑–⏑⏑⏑	2	8·3	1	4·2	8	17·8	4	12·1
⏑⏑–⏑⏑⏑	0	0·0	1	4·2	1	2·2	0	0·0
	24	100·0	24	100·0	45	100·0	33	100·0

A word ends: (,)	Thucydides.	%	Demosthenes.	%	Philo.	%	Plutarch.	%
⏑–⏑⏑⏑,⏑	0	0·0	1	2·8	0	0·0	0	0·0
⏑–⏑⏑,⏑⏑	1	2·8	0	0·0	4	7·3	0	0·0
⏑–⏑,⏑⏑⏑	4	11·4	3	8·3	5	9·1	4	8·5
⏑–,⏑⏑⏑⏑	20	57·1	20	55·6	31	56·4	26	55·3
⏑,–⏑⏑⏑⏑	10	28·6	11	30·6	14	25·4	17	36·2
⏑⏑–⏑⏑⏑⏑	0	0·0	1	2·8	1	1·9	0	0·0
	35	100·0	36	100·0	55	100·0	47	100·0

FORM –⏑––⏑.

Form of the last word:	Thucydides.	%	Demosthenes.	%	Philo.	%	Plutarch.	%
⏑	0	0·0	3	3·6	1	1·5	0	0·0
–⏑	9	20·9	30 !	35·7 !	17	25·8	6	14 6
––⏑	12	27·9	25	29·8	14	21·2	3	7·3
⏑––⏑	20	46·5	18	21·4	29	43·9	27	65·9
–⏑––⏑	2	4·7	7	8·3	5	7·6	5	12·0
⏑⏑–⏑––⏑	0		1	1·2	0	0·0	0	0·0
	43	100·0	84	100·0	66	100·0	41	100·0

A word ends: (,)	Thucydides.	%	Demosthenes.	%	Philo.	%	Plutarch.	%
⏑–⏑––,⏑	0	0·0	3	2·0	1	1·1	0	0·0
⏑–⏑–,–⏑	9	14·8	30	19·8	17	18·1	6	9·8
⏑–⏑,––⏑	13	21·3	38	25·2	14	14·9	8	13·1
⏑–,⏑––⏑	26	42·6	32	21·2	43	45·8	30	49·2
⏑,–⏑––⏑	13	21·3	47	31:1	19	20·2	17	27·9
⏑–⏑––⏑	0	0·0	1	0·7	0	0·0	0	0·0
	61	100·0	151	100·0	94	100·0	61	100·0

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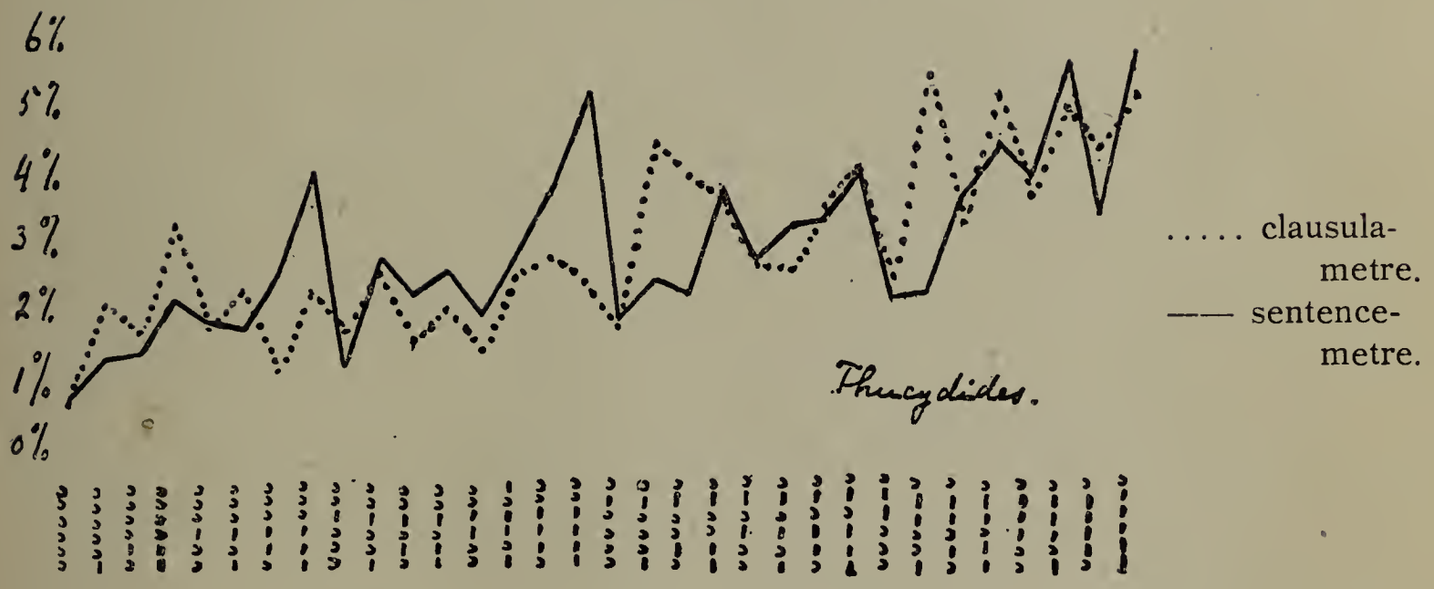
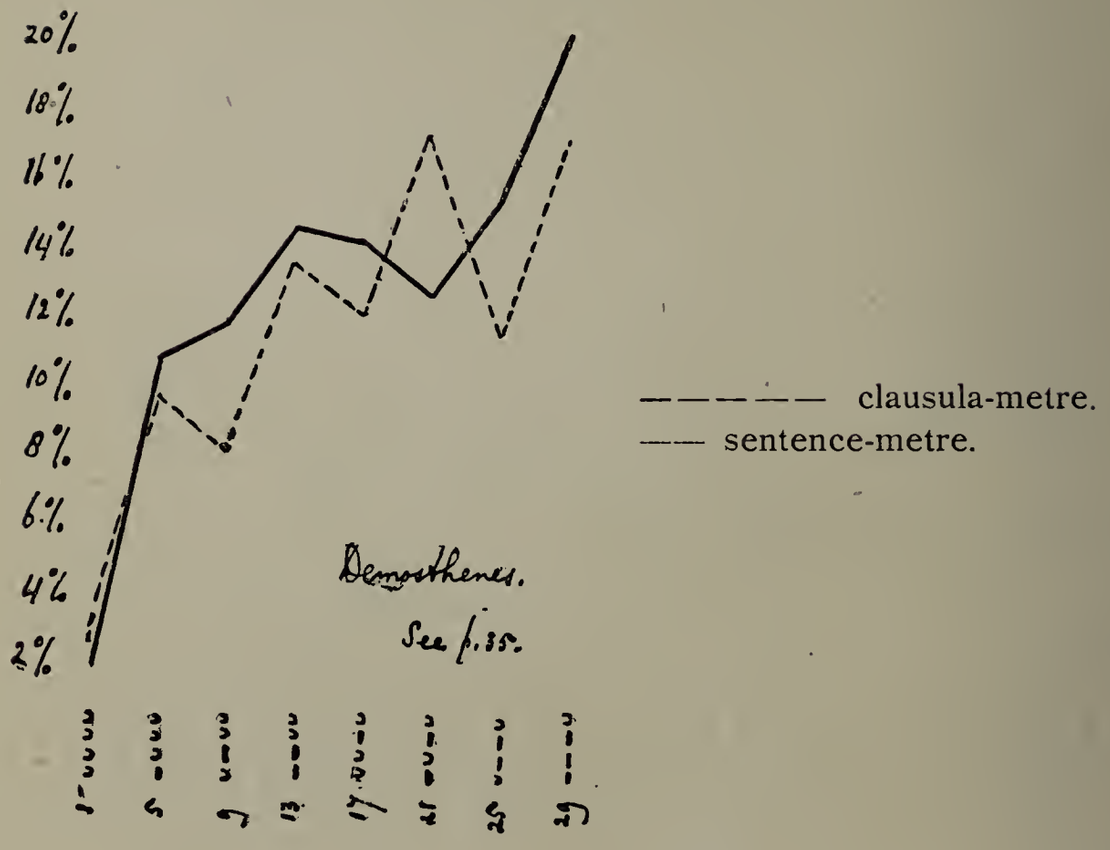
CURVES.

I. THUCYDIDES.



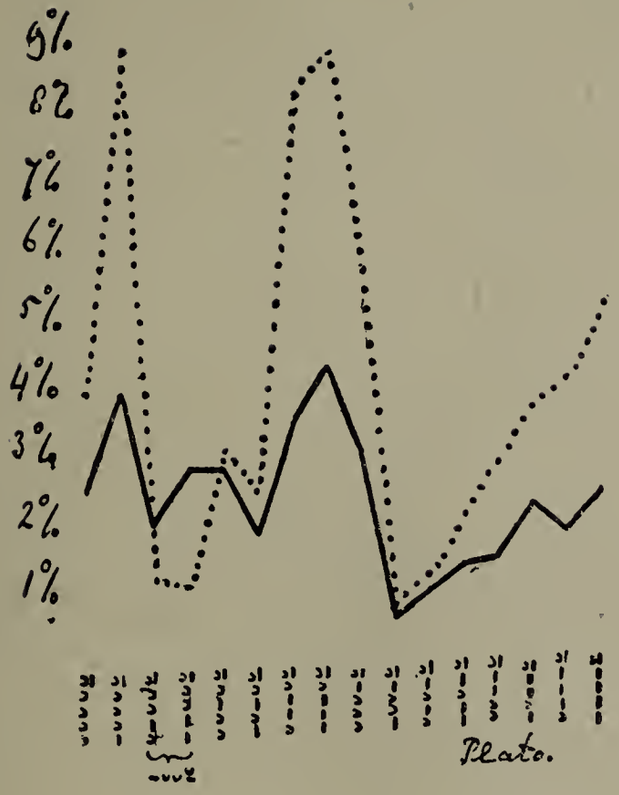
These curves show the striking agreement between Thucydides' sentence-metre and his clausula. The few deviations (e. g. for —⏑⏑—⏑⏑—⏑, for —⏑⏑—⏑⏑—⏑, for —⏑⏑—⏑—⏑, for —⏑⏑—⏑—⏑) have been discussed above (p. 184—85, p. 20—28); they are probably due to chance.

II. DEMOSTHENES.



These curves show that Demosthenes has only one really preferred clausula, viz. —⏑—⏓. See Norden, Antike Kunstprosa[2], p. 911 and 923; and above p. 33—34.

III. PLATO.



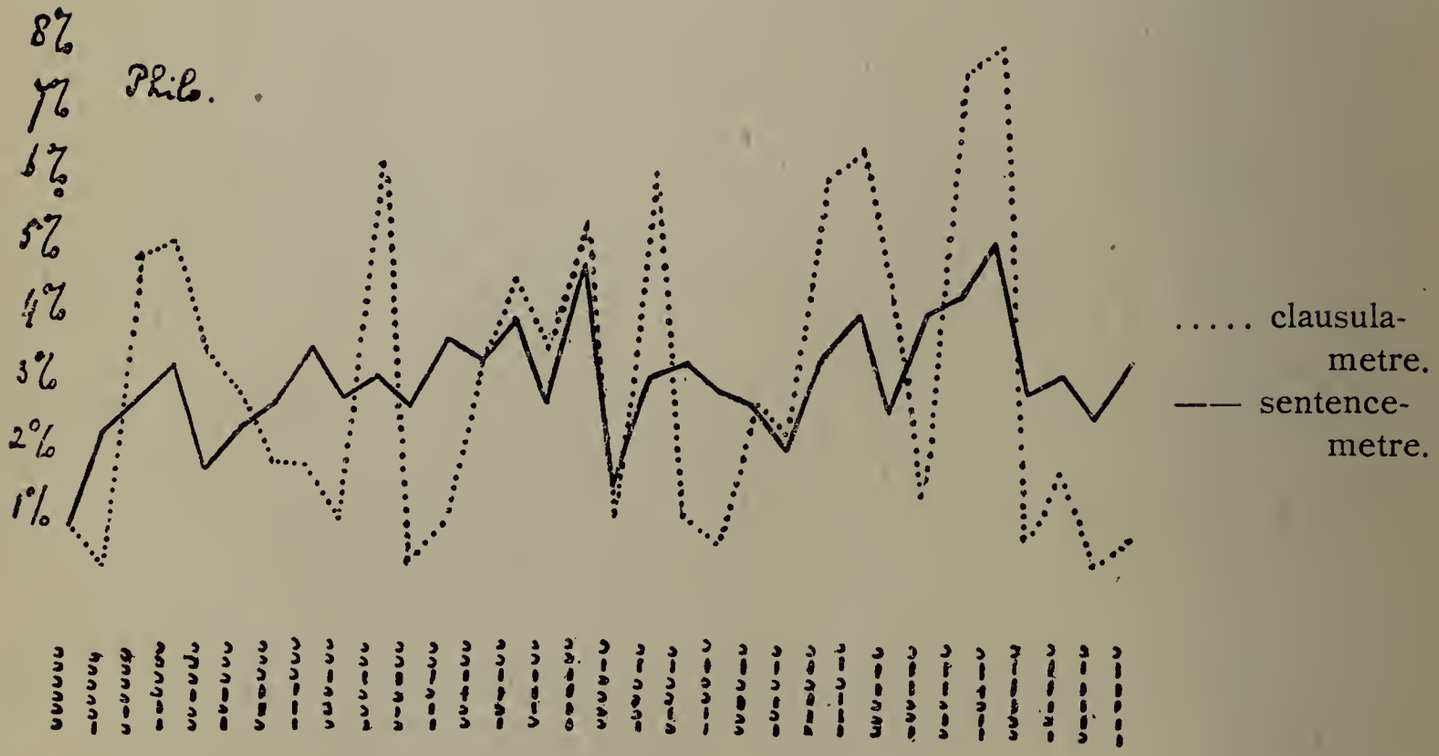
LAWS.

..... frequency of the forms ending in a long syllable.
—— frequency of these very forms ending in a short syllable.

From these curves it appears clearly, that the quantity of the last syllable in Plato's later works is not indifferent at all; see above p. 191. That, though in general a long final syllable is more frequent than a short one — owing to the greater frequency of long syllables in the Greek language —, this rule does not hold good for the clausula —⏑⏑⏓, where —⏑⏑⏑ is preferred to —⏑⏑—, apparently owing to a general preference for a tribrach over a dactyl. On the other hand it appears that ⏑⏑⏑— is preferred to ⏑⏑⏑⏑, which fact agrees with the passage in Aristotle who speaks only of the fourth paean (⏑⏑⏑—, not ⏑⏑⏑⏑). Likewise —⏑——⏑— is preferred to —⏑——⏑⏑; the same is

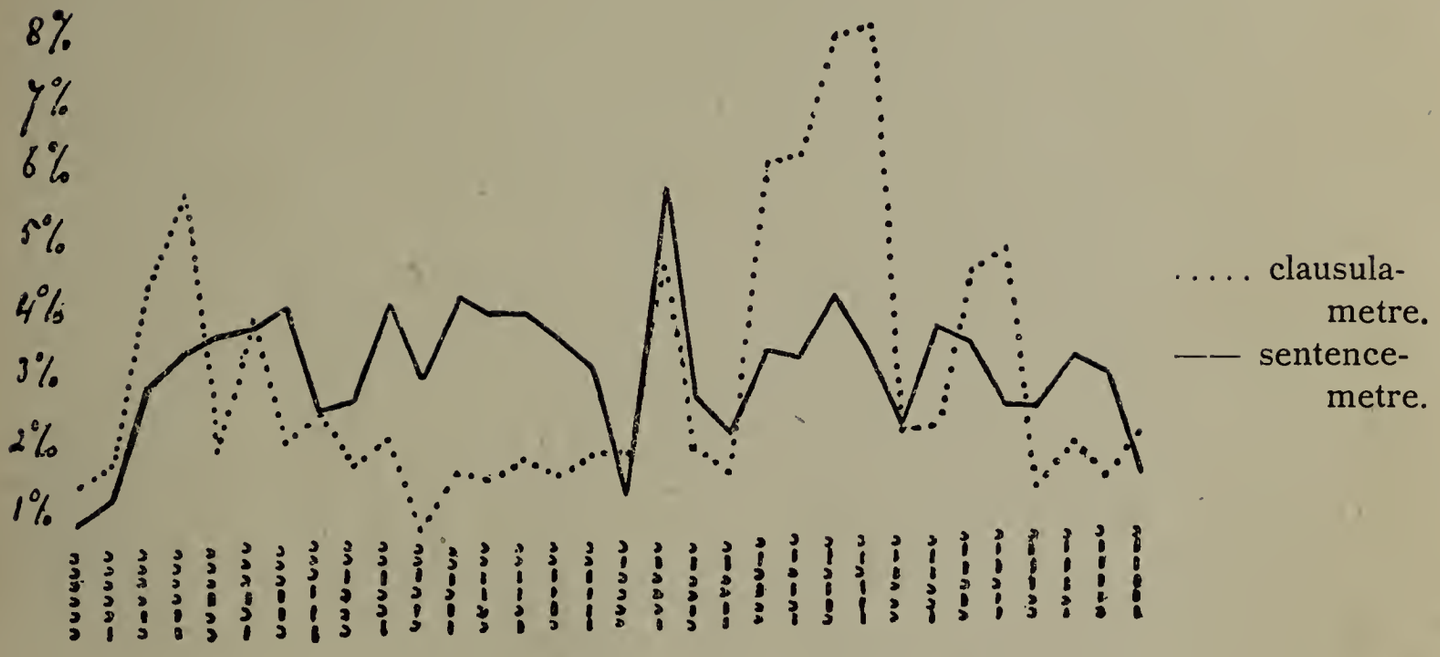
true for ————⏑— and ————⏑⏑, from which it may be inferred that —⏑——⏑— and ————⏑— belong together. See above pp. 191—192, and 61—64.

IV. PHILO.



These curves clearly show that the clausulae —⏑⏑⏑⏓, —⏑⏑⏓ (e.g. —⏑—⏑⏑⏓), —⏑⏑—⏑⏑, —⏑——⏑—, ————⏑—, —⏑⏑⏑—⏓, —⏑—⏓ and —⏑——⏓ have been preferred by him. See above p. 196, and pp. 54—58.

V. PLUTARCH.



These curves show his preference for

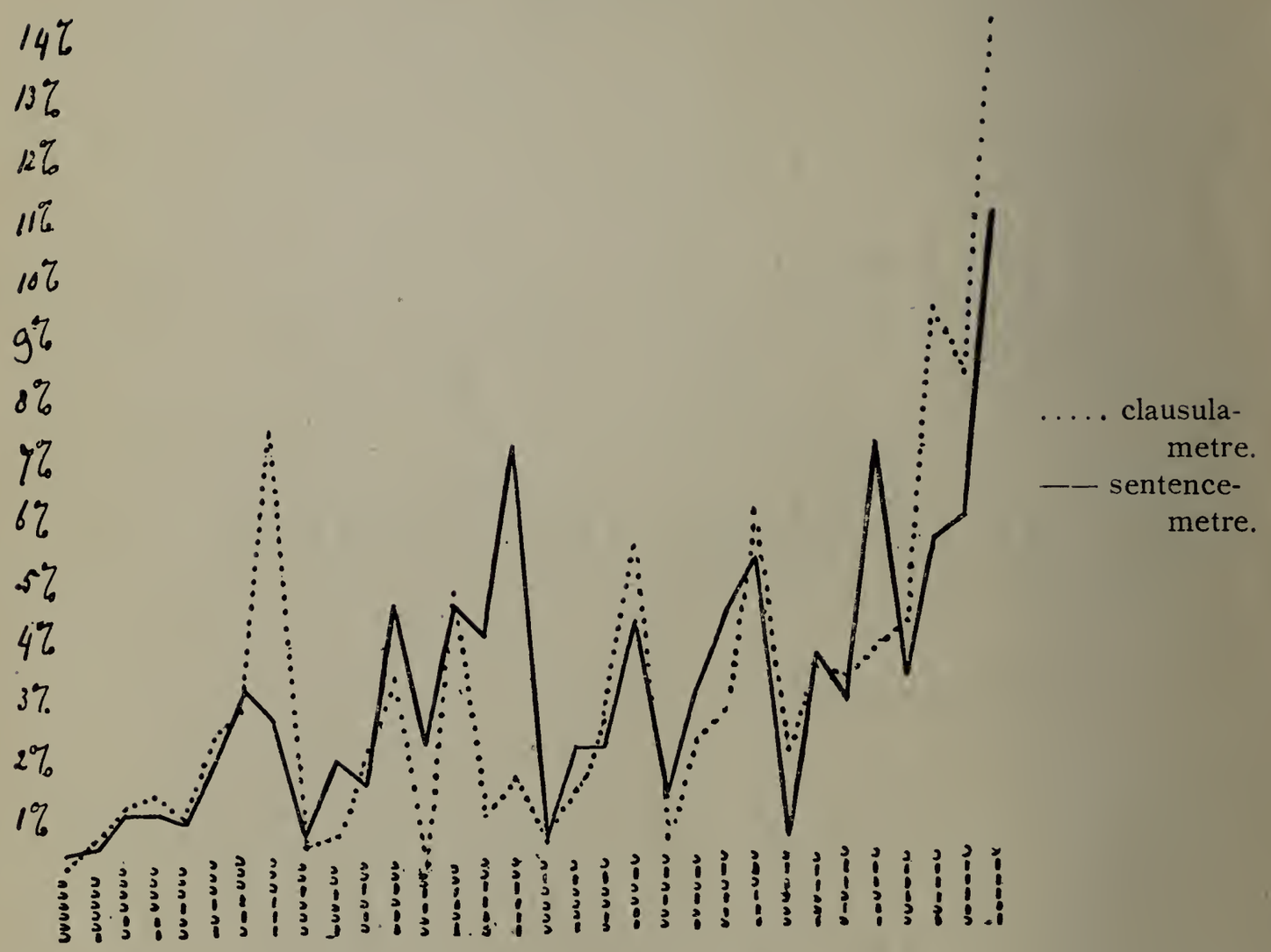
⏑⏑⏑–

–⏑–⏑

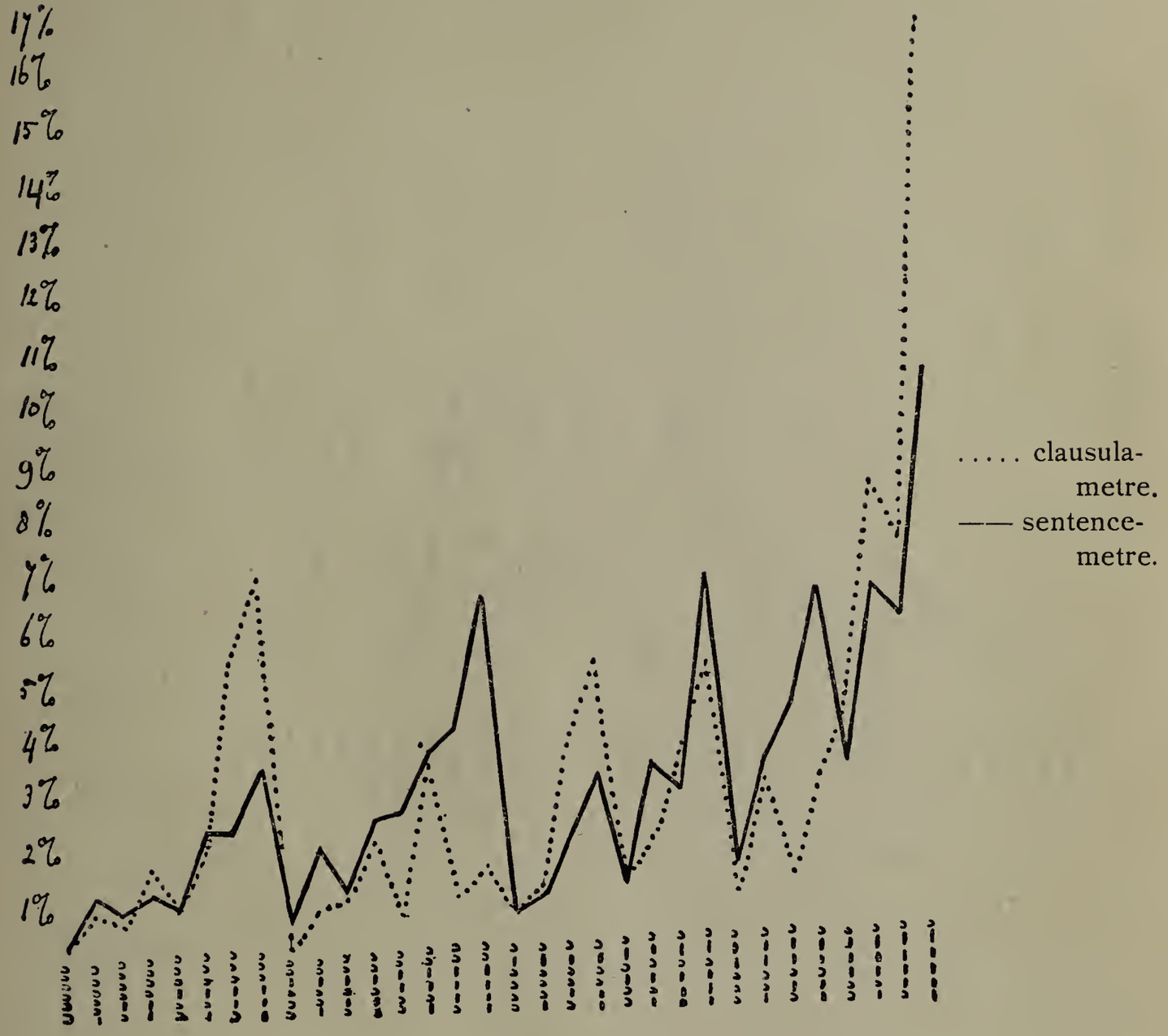
–⏑––⏑

and *no other forms*. See above pp. 33—39, and p. 185. See also my remarks in Berliner Philologische Wochenschrift 1917, col. 1158.

VI. LIVY.

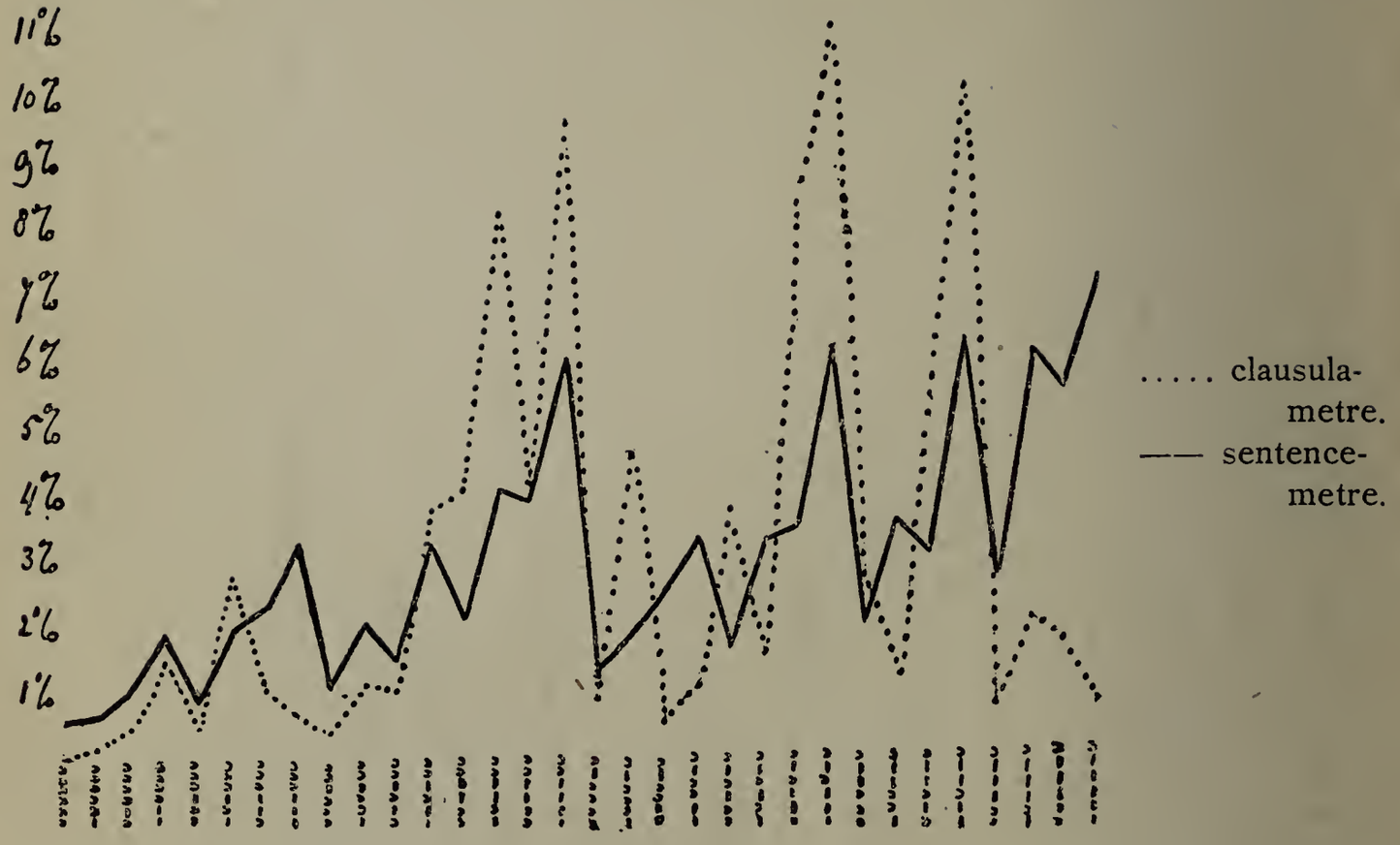


These curves have been inserted in order to give a superficial idea of the reliability of our results in details. The material on which the first curve is based comprises 1.000 cases from the sentence-metre of book IV, compared with 1.000 clausulae from the same book. The other is based upon the same number of cases from book XLII. The curves are nearly the same. The agreement would have been much more striking, if not the frequency of six-



syllabic forms, but that of five- or *four*-syllabic forms had been represented. The question will be discussed in the second volume. See above pp. 112, 121, 126, and my paper: De numero oratorio Latino, which will shortly appear. Livy prefers ——⏑⏑⏑≍, —⏑⏑—≍, and ———≍.

VII. CICERO.



These curves show the preference of Cicero for —⏑—⏑⏑—⏑, —⏑———⏑—, ————⏑—, —⏑⏑⏑—⏑, —⏑—⏑, —⏑———⏑. See my paper: De numero oratorio Latino, and the second volume of this work.

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CORRIGENDA.

Page 7, line 4, 336 instead of 308.

„ 62, „ 23, 463 „ „ 000.

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